STIC Search Report
EIC 3700

STIC Database Tracking Number: 123[illegible]

TO:	From:
Roderick Bradford **Location: cp2 3a11** **Art Unit: 3762** **Case Serial Number: 09/978134**	**Jeanne Horrigan** **Location: EIC 3700** **CP2-2C08** **Phone: 305-5934** **jeanne.horrigan@uspto.gov**

Search Notes

Attached are the search results for the systems and methods for automatically optimizing stimulus parameters and electrode configurations for neuro-stimulators, including prior art searches in foreign and international patent databases, and medical, electronic, and general sci/tech/engineering non-patent literature databases.

I tagged the results that seemed to me to be most relevant, but I recommend that you review all of the results, especially as I was not sure what some of the articles/patents were about. There were a lot of hits on using stimulation for heart, cochlear, and paralysis applications. I was not sure if they were relevant, so at least left the titles of these in.

Also attached is a search feedback form. Completion of the form is voluntary. Your completing this form would help us improve our search services.

I hope the attached information is useful. Please feel free to contact me (phone 305-5934 or email jeanne.horrigan@uspto.gov) if you have any questions or need additional searching on this application.

Access DB# 123585

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Roderick Bradford Examiner #: 79013 Date: 6/2/04
Art Unit: 3762 Phone Number 30 5-3287 Serial Number: 09/978,134
Mail Box and Bldg/Room Location: 3A11 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: System & Methods for automatically optimizing stimulus parameters and electrode configurations for neuro-stimulators

Inventors (please provide full names):
Bradford Gliner Jeffrey Balzer Andrew Firlik

Earliest Priority Filing Date: 7/13/00

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

****

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: Jamie Harrigan	NA Sequence (#)	STN
Searcher Phone #:	AA Sequence (#)	Dialog
Searcher Location:	Structure (#)	Questel/Orbit
Date Searcher Picked Up:	Bibliographic	Dr.Link
Date Completed:	Litigation	Lexis/Nexis
Searcher Prep & Review Time:	Fulltext	Sequence Systems
Clerical Prep Time:	Patent Family	WWW/Internet
Online Time:	Other	Other (specify)

PTO-1590 (8-01)

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File 155:MEDLINE(R) 1966-2004/May W5
Set     Items   Description
S1       4259   'TRANSCUTANEOUS ELECTRIC NERVE STIMULATION' OR DC='E2.779.-
            468.800.' OR DC='E2.831.580.468.800.' OR DC='E3.91.823.' OR '-
            ANALGESIC CUTANEOUS ELECTROSTIMULATION' OR 'ELECTRIC STIMULAT-
            ION, TRANSCUTANEOUS' OR R7 OR R8 OR 'TENS' OR R10
S2       9970   'ELECTRIC STIMULATION THERAPY' OR DC='E2.779.468.' OR DC='-
            E2.831.580.468.' OR 'ELECTROTHERAPY'
S3     525873   PATTERN? OR CONFIGUR?
S4      58962   ELECTRODE? ?
S5      54877   SENSOR OR SENSORS OR SENSE? ? OR SENSING
S6      54924   EMG OR ELECTROMYOGRAPH? OR FUNCTIONAL()(MRI OR MAGNETIC()R-
            ESONANCE)
S7     102612   ELECTRIC??(1W)STIMUL?
S8     283022   PARAMETER? ?
S9         25   S1:S2 AND S3(5N)S4
S10         3   S5:S6 AND S9
S11        22   S9 NOT S10
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10/9/1

DIALOG(R)File 155:MEDLINE(R)
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15650565 PMID: 14650946

Safety of a combined strength and endurance training using neuromuscular electrical stimulation of thigh muscles in patients with heart failure and bipolar sensing **cardiac pacemakers.**

Crevenna Richard; Mayr Winfried; Keilani Mohammad; Pleiner Johannes; Nuhr Martin; Quittan Michael; Pacher Richard; Fialka-Moser Veronika; Wolzt Michael

Universitatsklinik fur Physikalische Medizin und Rehabilitation, Universitat Wien, Vienna, Austria. richard.crevenna@univie.ac.at

Wiener klinische Wochenschrift (Austria) Oct 31 2003, 115 (19-20) p710-4, ISSN 0043-5325 Journal Code: 21620870R

Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Neuromuscular electrical stimulation (NMES) is an effective and non-strenuous therapy to enhance the strength and endurance capacity of the skeletal muscles in patients with severe chronic heart failure. NMES in patients with pacemakers is controversial because potential electromagnetic interference may result in pacemaker malfunction. Therefore, such patients are in general excluded from NMES. The aim of this pilot study was to evaluate the safety of a combined NMES protocol to increase strength and endurance capacity of the skeletal muscles in patients with heart failure and implanted pacemakers. Seven patients with chronic heart failure and implanted cardiac pacemakers with bipolar **sensing** leads received NMES treatment of thigh muscles, using a combined protocol comprising biphasic, symmetric, rectangular constant current impulses at different frequencies (8-50 Hz), pulse width up to 60 s (8 Hz), 4 s (15 Hz), 4 s (30 Hz), and 6 s (50 Hz), and amplitudes up to +/- 100 mA (all frequencies) applied to both knee extensor and flexor muscles via surface electrodes (8 x 13 cm each). Acute electromagnetic interference during a safety procedure (telemetric monitoring) before therapeutic NMES application was not observed in any of the patients. The 7 patients received during 20 therapeutic NMES sessions a

total of 23,380 on-phases, comprising 2194.08 x 10(3) biphasic electrical pulses, without adverse events. Heart rate monitoring during stimulation and pacemaker interrogation revealed no abnormalities. NMES treatment of thigh muscles using a combined NMES protocol to enhance strength and endurance capacity appears to be safe in patients with heart failure and implanted pacemakers with bipolar **sensing** , as far as the described **electrode configuration** and parameter range is applied.

Tags: Comparative Study; Female; Human; Male

Descriptors: **Electric Stimulation Therapy** --methods--MT; *Heart Failure, Congestive--complications--CO; *Heart Failure, Congestive--rehabilitation --RH; *Pacemaker, Artificial; Adult; Aged; Middle Aged; Muscle, Skeletal --physiology--PH; Physical Endurance; Pilot Projects; Safety; Thigh

Record Date Created: 20031203

Record Date Completed: 20040213

10/9/2

DIALOG(R)File 155:MEDLINE(R)

11449284 PMID: 11555752

Determination of the optimal conditions for laryngeal pacing with the Itrel II implantable stimulator.

Zealear D L; Swelstad M R; Sant'Anna G D; Bannister R A; Billante C R; Rodriguez R J; Garren K C; Billante M J; Champney M S

Department of Otolaryngology-Head and Neck Surgery, Vanderbilt University, Nashville, Tennnessee 37232, USA. david.l.zealear@vanderbilt.edu

Otolaryngology--head and neck surgery - official journal of American Academy of Otolaryngology-Head and Neck Surgery (United States) Sep 2001, 125 (3) p183-92, ISSN 0194-5998 Journal Code: 8508176

Contract/Grant No.: 2RO1 DCO1149; DC; NIDCD

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

OBJECTIVE: To determine the optimal stimulus paradigm, **electrode** orientation, and **configuration** of an implantable stimulator used to reanimate the posterior-cricoarytenoid (PCA) muscle in case of bilateral vocal fold paralysis (BVFP). STUDY DESIGN: Acute studies were conducted on 13 canines implanted with Itrel II systems with or without PCA innervation. PCA stimulus-response characteristics were obtained by measuring stimulated vocal fold displacement endoscopically. RESULTS: The denervated PCA was only 10% to 25% as responsive to stimulation as the innervated PCA. However, the response could be increased to 38% and 61% if the Itrel was modified to deliver 1 and 2 msec pulses, respectively. Stimuli delivered centrally to the muscle 5 mm from the median raphe improved performance. CONCLUSION AND SIGNIFICANCE: The optimal stimulus paradigm identified in this study (1 msec pulses delivered at 30 to 40 Hz and 2 to 8.5 mA) has been applied to implanted BVFP patients and improved outcome. Information regarding optimal electrode orientation could also be important to future clinical trials.

Tags: Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

Descriptors: **Electric Stimulation Therapy** --instrumentation--IS; *Prostheses and Implants; *Vocal Cord Paralysis--therapy--TH; Animals; Dogs ; Electrodes; **Electromyography** ; Laryngeal Muscles--physiopathology--PP

Record Date Created: 20010913

Record Date Completed: 20011025

10/9/3
DIALOG(R)File 155:MEDLINE(R)

10867803 PMID: 11001507
Recruitment properties of intramuscular and nerve-trunk stimulating electrodes
Singh K; Richmond F J; Loeb G E
Department of Physiology, Queen's University, Kingston, ON, Canada.
IEEE transactions on rehabilitation engineering - a publication of the IEEE Engineering in Medicine and Biology Society (UNITED STATES) Sep 2000 , 8 (3) p276-85, ISSN 1063-6528 Journal Code: 9413994
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Functionally useful reanimation of paralyzed limbs generally requires reliable, finely graded control of muscle recruitment and force with minimal fatigue. We used force and **electromyographic** (**EMG**) recordings in combination with myofibrillar adenosine triphosphatase activity and glycogen depletion analysis to investigate the recruitment properties of intramuscular (IM) and nerve cuff (NC) stimulating electrodes implanted acutely or chronically in cat hindlimbs. Overall, 32 muscles were submaximally stimulated with current intensities producing approximately 20% of maximal twitch force using 330 ms trains of pulses at 20 and 40 pps. Both the glycogen-depletion and fatigue-test results were found to be difficult to interpret because NC stimulation resulted in surprisingly unstable recruitment during such trains. Fluctuations of force and M-waves within trains of identical stimuli were significantly greater for NC than for IM stimulation. NC stimulation produced much steeper recruitment curves and a reduced tetanus/twitch ratio compared to IM stimulation. IM stimulation produced more reliable and less fatigable recruitment of a mix of motor unit types that tended to be localized in neuromuscular compartments containing, or adjacent to, the IM electrode. We hypothesize that trains of submaximal stimulation applied through NC electrodes resulted in fluctuating recruitment because this **electrode configuration** magnifies the effects of refractoriness and small changes in axonal excitability during pulse trains.
Tags: Female; Male; Support, Non-U.S. Gov't
Descriptors: **Electric Stimulation Therapy** --instrumentation--IS; *Electrodes, Implanted--standards--ST; *Hindlimb--innervation--IR; *Hindlimb--physiopathology--PP; *Muscle, Skeletal--innervation--IR; *Muscle, Skeletal--physiopathology--PP; *Paralysis--physiopathology--PP; *Paralysis--rehabilitation--RH; *Recruitment (Neurology)--physiology--PH; *Sciatic Nerve--physiopathology--PP; Acute Disease; Adenosine Triphosphate --analysis--AN; Adenosine Triphosphate--metabolism--ME; Animals; Cats; Chronic Disease; Disease Models, Animal; **Electric Stimulation Therapy** --adverse effects--AE; **Electric Stimulation Therapy** --methods--MT; **Electromyography** ; Equipment Design; Glycogen--analysis--AN; Glycogen --metabolism--ME; Hindlimb--metabolism--ME; Materials Testing; Muscle Fatigue--physiology--PH; Muscle, Skeletal--metabolism--ME; Myofibrils --metabolism--ME; Myofibrils--physiology--PH; Paralysis--metabolism--ME; Sciatic Nerve--metabolism--ME
CAS Registry No.: 56-65-5 (Adenosine Triphosphate); 9005-79-2 (Glycogen)
Record Date Created: 20010103

Record Date Completed: 20010125

11/6/1
15570426 PMID: 12699824
Animal models for treatment of unresectable liver tumours: a histopathologic and ultra-structural study of cellular toxic changes after electrochemical treatment in rat and dog liver.
Apr 2003

11/6/2
14107915 PMID: 9805203
Calculation of the electrical parameters in electrochemotherapy of solid tumours in mice.
Jul 1998

11/6/3
14015967 PMID: 9715158
Anorectal reconstruction after abdominoperineal resection. Experience with double-wrap graciloplasty supported by low-frequency electrostimulation.
Aug 1998

11/6/6
13651537 PMID: 9346361
Host's immune response in electrotherapy **of murine tumors by direct current.**
Sep 1997

11/6/7
13461612 PMID: 9144615
Multielectrode nerve cuff stimulation of the median nerve produces selective movements in a raccoon animal model.
Apr 1997

11/6/8
12711832 PMID: 7633780
Visual prostheses based on direct interfaces with the visual system.
Apr 1995

11/6/9
12282696 PMID: 12636188
Perturbation of blood flow as a mechanism of anti-tumour action of direct current electrotherapy .
Feb 2003

11/6/14
11100237 PMID: 11143379
Verification of the finite element method to model subthreshold electrical current density in saline.
1999

11/6/19
08154003 PMID: 2471173
Electrical techniques for stimulation of the phrenic nerve to pace the diaphragm: inductive coupling and battery powered total implant in asynchronous and demand modes.
May 1989

11/6/21
06072576 PMID: 6600799
Finite element analysis of current pathways with implanted electrodes.
Jan 1983

11/6/22
05847718 PMID: 6979052
Transcutaneous electrical nerve stimulation for nonunited fractures; a clinical report.
Jun 1982

11/9/4
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
13986706 PMID: 9686280
Dual channel electrostimulation in pain.
Devulder J; De Laat M; Rolly G
Department of Anesthesia, University Hospital Ghent, Belgium.
Acta neurologica Belgica (BELGIUM) Jun 1998, 98 (2) p195-8, ISSN 0300-9009 Journal Code: 0247035
Document type: Case Reports; Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Spinal cord stimulation is an accepted treatment for neuropathic pain. Technical advances in electrode design and better patient selection have led to better and sustained pain control by these devices. Multilead electrical stimulation is the latest innovation in implantable electrostimulation (Mattrix, Medtronic Minneapolis, USA). Two combined multipolar leads connected to a radiofrequency--coupled system can deliver electrical pulses of various amplitudes and pulse widths at different dermatome levels. Single stimulation is applied with different **electrode configurations** using both **electrodes** with identical stimulation parameters. In dual stimulation, the amplitude and the pulse width can vary between the **electrode configurations** . Dual channel stimulation helps steering stimulation paresthesias. Three patients illustrate the technical advantages of dual channel electrostimulation in the pain relief at multiple sites. Two patients with failed back surgery syndrome obtained more easily stimulation-induced paresthesias in the back and the legs. Dual channel stimulation is cost saving in patients implanted with two electrodes. This is presented in a third patient with an electrode in the thalamus--as pain treatment for cervicobrachialgia and a second in the epidural space--as treatment for the failed back surgery syndrome. These electrodes were connected to the Mattrix stimulator.
Tags: Female; Human; Male
Descriptors: **Electric Stimulation Therapy** ; *Neuralgia--therapy--TH; *Spinal Cord Diseases--therapy--TH; Adult; Middle Aged
Record Date Created: 19981022
Record Date Completed: 19981022

11/9/5
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
13915113 PMID: 9614751
Transverse tripolar stimulation of peripheral nerve: a modelling study of

spatial selectivity.
Deurloo K E; Holsheimer J; Boom H B
Department of Electrical Engineering, University of Twente, Enschede, The Netherlands. k.e.i.deurloo@el.utwente.nl
Medical & biological engineering & computing (ENGLAND) Jan 1998, 36 (1) p66-74, ISSN 0140-0118 Journal Code: 7704869
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Various anode-cathode configurations in a nerve cuff are modelled to predict their spatial selectivity characteristics for functional nerve stimulation. A 3D volume conductor model of a monofascicular nerve is used for the computation of stimulation-induced field potentials, whereas a cable model of myelinated nerve fibre is used for the calculation of the excitation thresholds of fibres. As well as the usual configurations (monopole, bipole, longitudinal tripole, 'steering' anode), a transverse tripolar configuration (central cathode) is examined. It is found that the transverse tripole is the only configuration giving convex recruitment contours and therefore maximises activation selectivity for a small (cylindrical) bundle of fibres in the periphery of a monofascicular nerve trunk. As the **electrode configuration** is changed to achieve greater selectivity, the threshold current increases. Therefore threshold currents for fibre excitation with a transverse tripole are relatively high. Inverse recruitment is less extreme than for the other configurations. The influences of several geometrical parameters and model conductivities of the transverse tripole on selectivity and threshold current are analysed. In chronic implantation, when electrodes are encapsulated by a layer of fibrous tissue, threshold currents are low, whereas the shape of the recruitment contours in transverse tripolar stimulation does not change.
Tags: Human
Descriptors: Computer Simulation; * **Electric Stimulation Therapy** --instrumentation--IS; *Peripheral Nerves; Animals; Cats; Neural Conduction
Record Date Created: 19980622
Record Date Completed: 19980622

11/9/10
DIALOG(R)File 155:MEDLINE(R)

11970374 PMID: 12182776
Spinal cord stimulation electrode design: prospective, randomized, controlled trial comparing percutaneous and laminectomy electrodes-part I: technical outcomes.
North Richard B; Kidd David H; Olin John C; Sieracki Jeffrey M
Department of Neurosurgery, School of Medicine, Johns Hopkins University, Baltimore, Maryland 21287-7713, USA. rnorth@jhmi.edu
Neurosurgery (United States) **Aug 2002**, 51 (2) p381-9; discussion 389-90, ISSN 0148-396X Journal Code: 7802914
Document type: Clinical Trial; Evaluation Studies; Journal Article; Randomized Controlled Trial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
OBJECTIVE: The clinical use of spinal cord stimulation for treatment of

chronic intractable pain has been increasingly successful because of recent technical improvements, particularly the development of multiple-contact electrodes supported by programmable implanted pulse generators. **Contemporary electrodes can be placed percutaneously in some cases** and require a limited laminectomy in other cases. METHODS: We performed a prospective, randomized, controlled trial comparing two prototypical electrode designs, using a computerized system that allows direct patient interaction and quantitative measurements. A series of 24 patients with chronic lumbosacral pain syndromes first underwent testing with percutaneous four-contact electrodes and then underwent implantation, at the same spinal level, of one of two different **electrode configurations** ; 12 patients received a new percutaneous four-contact electrode of the same design and 12 received an insulated four-contact array, which was implanted via laminectomy. RESULTS: The insulated array performed significantly (P = 0.0005-0.0047) better than the temporary percutaneous electrode for the same patients, according to all three measures tested (ratings of paresthesia coverage of pain, coverage calculated from patient drawings, and amplitudes), at the "usage" amplitude for the three standard bipoles examined. The insulated array also performed significantly (P = 0.0000-0.026) better than the permanent percutaneous electrode in terms of coverage ratings and amplitude requirements. Low back coverage ratings were significantly better for the insulated array than for the temporary percutaneous electrode, and scaled amplitudes necessary for low back coverage were significantly better for the permanent percutaneous electrode than for the temporary electrode. In comparison with the percutaneous temporary electrode, at subjectively identical stimulation intensities, the permanent insulated array required significantly lower amplitude. CONCLUSION: We can immediately infer from these technical data that the use of an insulated array, in comparison with a percutaneous electrode, would double battery life. Extended follow-up monitoring will be required to assess the extent to which the technical advantages we observed for the insulated array might be associated with improved clinical outcomes.

Tags: Comparative Study; Human

Descriptors: **Electric Stimulation Therapy** --instrumentation--IS; * **Electric Stimul**ation Therapy --methods--MT; *Electrodes; *Low Back Pain --therapy--TH; *Pain, Intractable--therapy--TH; *Spinal Cord --physiopathology--PP; Electrodes, Implanted; Equipment Design; Laminectomy ; Low Back Pain--physiopathology--PP; Pain, Intractable--physiopathology --PP; Prospective Studies; **Transcutaneous Electric Nerve Stimulation** --instrumentation--IS; Treatment Outcome

Record Date Created: 20020816

Record Date Completed: 20021010

11/9/11

DIALOG(R)File 155:MEDLINE(R)

11827778 PMID: 12018648

Interaction of array of finite electrodes with layered biological tissue: effect of electrode size and configuration .

Livshitz L M; Mizrahi J; Einziger P D

Department of Biomedical Engineering, Technion-Israel Institute of Technology, Haifa. jm@biomed.technion.ac.il

IEEE transactions on neural systems and rehabilitation engineering - a publication of the IEEE Engineering in Medicine and Biology Society (United States) Dec 2001, 9 (4) p355-61, ISSN 1534-4320 Journal Code: 101097023

Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

A hybrid scheme, combining image series and moment method has been utilized for the calculation of the intramuscular three-dimensional (3-D) current density (CD) distribution and potential field **transcutaneously excited by an electrode array**. The model permits one to study the effect of tissue electrical properties and electrode placement on the CD distribution. The isometric recruitment curve (IRC) of the muscle was used for parameter estimation and model verification, by comparison with experimentally obtained IRCs of functional electrical stimulation (FES)-activated quadriceps muscle of paraplegic subjects. Sensitivity of the calculated IRC to parameters such as tissue conductivity, **electrode** size, and **configuration** was verified. The resulting model demonstrated characteristic features that were similar to those of experimentally obtained data. The model IRCs were insensitive to the electrode size; however, the inclusion of the bone-fascia layer significantly increased the intramuscular CD and, consequently, increased the IRC slope. Of the different **configurations** studied, a four- **electrode** array proved advantageous because, in this case, the CD between the electrodes was more evenly distributed, providing better resistance to fatigue. However, due to the steeper linear portion of the IRC, this configuration suffered from a somewhat reduced controllability of the muscle.

Tags: Comparative Study; Human; Support, Non-U.S. Gov't

Descriptors: **Electric Stimulation Therapy** --instrumentation--IS; * **Electric Stimulation Therapy** --methods--MT; *Electrodes; *Electrophysiology--methods--MT; *Models, Biological; *Muscle, Skeletal --physiopathology--PP; Electric Conductivity; Muscle Contraction --physiology--PH; Paraplegia--physiopathology--PP; Reproducibility of Results; Thigh--physiopathology--PP

Record Date Created: 20020520
Record Date Completed: 20020604

11/9/12
DIALOG(R)File 155:MEDLINE(R)
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11727735 PMID: 11904018

New trends in neuromodulation for the management of neuropathic pain.

Alo Kenneth M; Holsheimer Jan

Pain and Health Management Center, P.A. Houston, Texas 77090, USA. Aglio@sbcglobal.net

Neurosurgery (United States) Apr 2002, 50 (4) p690-703; discussion 703-4, ISSN 0148-396X Journal Code: 7802914

Document type: Journal Article; Review; Review, Tutorial
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Since its first application in 1967, the methodology and technology of spinal cord stimulation for the management of chronic, intractable pain have evolved continuously. Despite these developments and improved knowledge of the effects of spinal anatomy and epidural contact configuration on paresthesia coverage, the clinical results of spinal cord stimulation-particularly the long-term effects-are still unsatisfactory in

many patients. This dissatisfaction has come primarily from the failure of single- **electrode configurations** to provide consistent paresthesia coverage of the entire painful area. Therefore, new approaches were developed during the late 1990s that attempted to selectively cover one or more dermatomes with paresthesia as well as to provide sequential stimulation of different anatomic sites. These approaches have been applied both intraspinally and extraspinally by stimulating either the spinal nerves or the dorsal columns. To target parts of the latter, different **methods have been developed and tested using either two-dimensional contact configurations or electronic field steering**. These developments hold promise for improving long-term outcomes as well as increasing the number of pain conditions that can be treated with neuromodulation therapy. In this review, the history, theoretical basis, and evolution of these methodologies, as well as the ways in which they represent new trends in neuromodulation, are discussed. (85 Refs.)

Tags: Human; Support, Non-U.S. Gov't

Descriptors: *Neuralgia--therapy--TH; *Palliative Care--methods--MT; *Palliative Care--trends--TD; **Electric Stimulation Therapy** --instrumentation--IS; **Electric Stimulation Therapy** --methods--MT; Paresthesia--therapy--TH

Record Date Created: 20020320

Record Date Completed: 20020508

11/9/13

DIALOG(R)File 155:MEDLINE(R)

11561149 PMID: 11732831

Selectivity of intramuscular stimulating electrodes in the lower limbs.

Triolo R J; Liu M Q; Kobetic R; Uhlir J P

Motion Study Laboratory, Louis Stokes Cleveland Department of Veterans Affairs Medical Center, OH 44106, USA. rxt24@po.cwru.edu

Journal of rehabilitation research and development (United States) Sep-Oct 2001, 38 (5) p533-44, ISSN 0748-7711 Journal Code: 8410047

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

Intramuscular (IM) electrodes have been used safely and effectively for decades to activate paralyzed muscles in neuroprosthetic systems employing functional electrical stimulation (FES). However, the response to stimulation delivered by these and any type of electrode can be limited by a phenomenon known as spillover, in which the stimulus intended to produce a contraction in a particular muscle inadvertently activates another muscle, causes adverse sensation, or triggers undesired reflexes. The purpose of this retrospective study was to determine the selectivity of monopolar intramuscular stimulating electrodes implanted in the lower limbs of individuals with motor and sensory complete paraplegia secondary to spinal cord injury (SCI) and to catalog the most common **electrode** spillover **patterns** . The performance records of 602 **electrodes** from 10 subjects who participated in a program of standing and walking with FES in our laboratory over the past decade were examined. Sixty percent (358) of these electrodes were "stable" (i.e., stimulated responses were consistent during the first 6 months postimplant), and 32% of all stable electrodes (113) exhibited spillover as noted in clinical and laboratory records. Common spillover patterns for eight muscle groups were tabulated and

analyzed in terms of their functional implications. The beneficial (activation of synergistic muscles) or deleterious (activation of compromising reflexes, antagonists, or adverse sensation) effects of spillover were highly context dependent, with several potentially useful spillover patterns in certain phases of gait becoming undesirable and limiting in others. Knowledge of the selectivity of intramuscular **electrodes** and the **patterns** of spillover they exhibit should guide surgeons and rehabilitationists installing lower-limb neuroprostheses during the implantation process and allow them to better predict the ultimate functional usefulness of the electrodes they choose.

Tags: Human; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: **Electric Stimulation Therapy** ; *Electrodes; *Paraplegia --rehabilitation--RH; Muscle Contraction; Muscle, Skeletal--innervation--IR ; Retrospective Studies

Record Date Created: 20011204

Record Date Completed: 20020214

11/9/15

DIALOG(R)File 155:MEDLINE(R)

10392989 PMID: 7723069

Electrical field distribution within the injured cat spinal cord: injury potentials and field distribution.

Khan T; Myklebust J; Swiontek T; Sayers S; Dauzvardis M

Rehabilitation Research and Development Center, Hines Veterans Administration Hospital, Illinois, USA.

Journal of neurotrauma (UNITED STATES) Dec 1994, 11 (6) p699-710, ISSN 0897-7151 Journal Code: 8811626

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Subfile: INDEX MEDICUS

This study investigated the spontaneous injury potentials measured after contusion or transection injury to the cat spinal cord. In addition, the distribution of electrical field potentials on the surface and within the spinal cord were measured following applied electrical fields after transection and contusion injuries. After transection of the spinal cord, the injury potentials were -19.8 +/- 2.6 mV; after contusion of the spinal cord, the injury potentials were -9.5 +/- 2.2 mV. These potentials returned to control values within 2.5-4h after injury. The electrical field distribution measured on the dorsal surface, as well as within the spinal cord, after the application of a 10 microA current, showed little difference between contusion and transection injuries. Scalar potential fields were measured using two **configurations** of stimulating **electrodes** : dorsal to dorsal (D-D), in which both electrodes were placed epidurally on the dorsal surface of the spinal cord, and ventral to dorsal (V-D), in which one electrode was placed dorsally and one ventrally. As reported in normal uninjured cats, the total current in the midsagittal plane for the D-D configuration was largely confined to the dorsal portion of the spinal cord; with the V-D configuration, the current distribution was uniform throughout the spinal cord. In the injured spinal cord, the equipotential lines midway between the stimulating electrodes have a wider separation than in the uninjured spinal cord. Because the magnitude of the electrical field E is equal to the current density J multiplied by the resistivity r, this suggests that either the current density is reduced or that the

resistivity is reduced.
Tags: Support, U.S. Gov't, Non-P.H.S.
Descriptors: *Spinal Cord--physiopathology--PP; *Spinal Cord Injuries --physiopathology--PP; Animals; Cats; Contusions--physiopathology--PP; Disease Models, Animal; Electric Stimulation; **Electric Stimulation Therapy** ; Electrophysiology; Evoked Potentials; Nerve Regeneration; Spinal Cord Injuries--therapy--TH
Record Date Created: 19950519
Record Date Completed: 19950519

11/9/16
DIALOG(R)File 155:MEDLINE(R)

10340911 PMID: 7838783
Stimulation characteristics, complications, and efficacy of spinal cord stimulation systems in patients with refractory angina: a prospective feasibility study.
de Jongste M J; Nagelkerke D; Hooyschuur C M; Journee H L; Meyler P W; Staal M J; de Jonge P; Lie K I
Department of Cardiology, University Hospital of Groningen, The Netherlands.
Pacing and clinical electrophysiology - PACE (UNITED STATES) Nov 1994, 17 (11 Pt 1) p1751-60, ISSN 0147-8389 Journal Code: 7803944
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
OBJECTIVES: In a prospective study with a 1-year follow-up we evaluated: (1) the feasibility of a method for the adjustment of spinal cord stimulator (SCS) parameters, (2) complications of SCS, and (3) efficacy of SCS. METHODS: In patients receiving an SCS for severe angina unresponsive to standard therapies, SCS characteristics were evaluated within 1 week and at 4, 14, 26, and 52 weeks after SCS treatment. Step-by-step adjustment of pulse output parameters was performed at the **electrode configuration** at which paresthesias occurred ("sensory threshold"), covered the anginal area ("adjusted setting"), or provoked pain ("motor threshold"). In addition, the number of anginal attacks and intake of glyceryl trinitrate (GTN) tablets were recorded at regular intervals. RESULTS: Twenty-two patients with either a bipolar (14) or a unipolar (8) system were evaluated. In the 14 patients with bipolar systems, alteration in paresthesias required 26 reprogrammings of the configuration. In the eight patients with bipolar systems who completed the follow-up without lead dislocation, the mean "sensory threshold" was 3.3 V (1.7-5.6), the mean "adjusted stimulation" output was 4.5 V (2.8-7.6), and the mean "motor threshold" was 4.9 V (2.8-7.7) after 4 weeks SCS. The mean stimulation duration per 24 hours was 14.1% (5%-24%), and the mean standardized impedance was 821 omega (748-893) after 4 weeks SCS. The unipolar group demonstrated comparable results. After 1-year follow-up the parameters had not changed significantly. During the 1-year follow-up, 6 of 22 patients experienced lead dislocation that required surgery. In all patients, anginal attacks ($P < 0.003$) and GTN intake ($P < 0.005$) were reduced significantly with SCS. The effect lasted during the 1 year. CONCLUSIONS: During a 1-year follow-up, the stimulation parameters did not change significantly in the 16 patients without lead dislocations. Our standardized method appears to be feasible for follow-up of SCS. Moreover, SCS seems to be an effective adjuvant therapy for

intractable angina, despite a relatively frequent dislocation of the electrode.
Tags: Female; Human; Male; Support, Non-U.S. Gov't
Descriptors: Angina Pectoris--therapy--TH; * **Electric Stimulation Therapy** ; Aged; Angina Pectoris--physiopathology--PP; **Electric Stimulation Therapy** --adverse effects--AE; Feasibility Studies; Middle Aged; Nitroglycerin --therapeutic use--TU; Pain Threshold; Pain, Intractable--etiology--ET; Pain, Intractable--therapy--TH; Prospective Studies; Spinal Cord; Stroke Volume
CAS Registry No.: 55-63-0 (Nitroglycerin)
Record Date Created: 19950302
Record Date Completed: 19950302

11/9/17
DIALOG(R)File 155:MEDLINE(R)

09510473 PMID: 1279541
Correlation of electrophysiological activation patterns to tension generation in stimulated latissimus dorsi muscle.
Rhee E K; Furnary A P; Elson J J; Kao R L
Department of Surgical Research, Allegheny-Singer Research Institute, Johnson City, Tennessee.
Pacing and clinical electrophysiology - PACE (UNITED STATES) Nov 1992, 15 (11 Pt 1) p1730-9, ISSN 0147-8389 Journal Code: 7803944
Contract/Grant No.: HL38078; HL; NHLBI
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS
Skeletal muscle has been used for biomechanical assist in experimental and clinical studies. Central to the success of these procedures is the generation of sufficient muscle force for the lifetime of the subject. Burst (tetanic) stimulation results in summation of individual twitches and generates higher power output. However, the superiority of paraneural versus intramuscular as well as proximal versus middle and distal intramuscular stimulations remains unclear. Electrophysiological mapping and mechanical performance of seven canine latissimus dorsi muscles were analyzed. The mechanism of higher tension generation produced by: (1) increased temporal summation; (2) greater motor units activated; or (3) result of both were determined. The parameters primarily dependent on the number of activated motor units are significantly greater following paraneural and proximal intramuscular stimulations. The parameters mainly related to temporal summation are not different between various **electrode configurations** . For intramuscular stimulation, it is the location of interelectrode field rather than the location of the cathode per se that determines the mechanical performance of the skeletal muscle. Furthermore, tension development of skeletal muscle is primary nerve activation rather than direct muscle stimulation. The higher tension generation that resulted from different **electrode configurations** is produced by activating a higher number of muscle fibers through the neuromuscular junctions.
Tags: Support, U.S. Gov't, P.H.S.
Descriptors: **Electric Stimulation Therapy** ; *Muscle Contraction --physiology--PH; *Muscles--physiology--PH; Animals; Assisted Circulation --methods--MT; Dogs; Electrodes, Implanted; Electrophysiology; Motor Neurons--physiology--PH; Neuromuscular Junction--physiology--PH

Record Date Created: 19921211
Record Date Completed: 19921211

11/9/18

DIALOG(R)File 155:MEDLINE(R)

08196735 PMID: 2787277

The evolution strategy--a search strategy used in individual optimization of electrical parameters for therapeutic carotid sinus nerve stimulation.

Peters T K; Koralewski H E; Zerbst E W
IEEE transactions on bio-medical engineering (UNITED STATES) Jul 1989, 36 (7) p668-75, ISSN 0018-9294 Journal Code: 0012737
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

Optimization problems, arising in the search for parameters and/or techniques of functional electrostimulation (FES), disproportionally increase when multiple **electrodes** , **electrode configurations** , electrical parameters, and stimulation modes may be applied. When computational or investigational effort precludes systematic studies in FES, we propose to apply and evaluate Rechenberg's evolution strategy, which in technical use and numerical optimization has been valid in comparison to more traditional methods. This strategy implements mutation and selection processes in analogy to biological evolution. The effect of combined multiple input variables on a quality function (Q) is experimentally evaluated. The actual computed value of Q serves as a selection criterion for those input variable combinations which lead Q to approach a target value (maximization), similar to a hill-climbing procedure. In radiofrequency controlled, therapeutic electrical carotid sinus nerve stimulation (CSNS), we varied (mutated) combinations of pulse frequency and pulse amplitude parameters, according to the evolution strategy, in individual patients. CSNS lowers blood pressure and decreases heart rate. Q was computed from blood pressure and heart rate responses to CSNS. The strategy individually optimized electrical parameters to achieve large depressor responses upon CSNS. Although, in contrast to technical usage, only two input variables were investigated, and biomedical experience with the evolution strategy is limited so far, its potential use in other fields of FES, especially when more input variables are to be optimized, is discussed and encouraged.

Tags: Human
Descriptors: Angina Pectoris--therapy--TH; *Carotid Sinus--innervation --IR; * **Electric Stimulation Therapy** --methods--MT; Algorithms; Microcomputers
Record Date Created: 19890825
Record Date Completed: 19890825

11/9/20

DIALOG(R)File 155:MEDLINE(R)

07203541 PMID: 3879794

Spinal cord stimulation in the treatment of spasmodic torticollis.

Waltz J M; Scozzari C A; Hunt D P
Applied neurophysiology (SWITZERLAND) 1985, 48 (1-6) p324-38, ISSN 0302-2773 Journal Code: 7600656

Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Subfile: INDEX MEDICUS

This report presents our observations in 63 patients undergoing chronic spinal cord stimulation for treatment of spasmodic torticollis. In this series there were 23 patients (36.5%) who demonstrated marked improvement, characterized by no evidence of torticollis, full range of motility of the head and neck and no pain. Moderate improvement was found in 20 patients (31.8%) who showed minimal residual torticollis, but had full motility and no pain. There were 5 patients (7.9%) considered mildly improved who demonstrated decrease in their torticollic position, spasms and pain, but retained some element of torticollis and/or some limitation of motility. Correlations were made demonstrating the effect on the results of age, sex, **electrode** array, the **configuration** of the applied field and the parameters of stimulation.

Tags: Female; Human; Male; Support, Non-U.S. Gov't

Descriptors: **Electric Stimulation Therapy** --instrumentation--IS; *Spinal Cord; *Torticollis--therapy--TH; Adult; **Electric Stimulation Therapy** --methods--MT; Electrodes, Implanted; Follow-Up Studies; Middle Aged; Spasm --physiopathology--PP; Spasm--therapy--TH; Spinal Cord--physiopathology --PP; Torticollis--physiopathology--PP

Record Date Created: 19860916
Record Date Completed: 19860916

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File 155:MEDLINE(R) 1966-2004/May W5
File   5:Biosis Previews(R) 1969-2004/May W5
File  73:EMBASE 1974-2004/May W5
File  34:SciSearch(R) Cited Ref Sci 1990-2004/May W5
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 144:Pascal 1973-2004/May W5
File   2:INSPEC 1969-2004/May W5
File   6:NTIS 1964-2004/Jun W1
File   8:Ei Compendex(R) 1970-2004/May W5
File  94:JICST-EPlus 1985-2004/May W2
File  95:TEME-Technology & Management 1989-2004/May W4
File  99:Wilson Appl. Sci & Tech Abs 1983-2004/Apr
File  65:Inside Conferences 1993-2004/Jun W1
File  35:Dissertation Abs Online 1861-2004/May
Set     Items   Description
S1     107238   NERVE? ?(2N)STIMULAT? OR NEUROSTIMUL? OR NEURO()STIMUL? OR
              NERVE? ?(1N)THERAP?
S2    9053503   CONFIGURATION? ? OR ARRAY? ? OR DESIGN? ? OR PATTERN? ? OR
              CONSTELLATION? ?
S3    1033400   SENSOR OR SENSORS OR SENSING
S4   13030011   RESPONSE? ? OR RESPOND??? OR REACT????
S5    3773230   OPTIM? OR FAVOR???? OR FAVOUR????
S6    6263546   BEST OR MOST
S7    4621119   COMPUTER????
S8     346455   CONTROLLER? ?
S9   10195168   PATIENT OR PATIENTS
S10    254568   ELECTRIC??(2N)STIMUL?
S11     32880   ELECTROSTIMUL?
S12      2540   ELECTRO()(STIMUL? OR THERAP?)
S13     11835   ELECTRIC??(1W)THERAP?
S14    828228   ELECTROTHERAP? OR ELECTRODE? ?
S15   3703779   STIMUL?????
S16      2634   S2(5N)S10
S17     37037   S2(5N)S11:S14
S18     46956   S2(5N)S15
S19      3995   S16:S18 AND S3
S20       398   S19 AND S7:S8
S21        66   S20 AND S4
S22     10767   S5(3N)S3
S23      5548   S6(3N)S3
S24        15   S20 AND S22:S23
S25         7   S24/2001:2004
S26         8   S24 NOT S25
S27         5   RD (unique items)
S28        43   S20 AND S9
S29        34   RD (unique items)
S30         8   S29/2001:2004
S31        26   S29 NOT S30
S32        26   Sort S31/ALL/PY,A
S33        15   (S20 AND S1) NOT (S28 OR S24)
S34        10   RD (unique items)
S35         4   S34/2001:2004
S36         6   S34 NOT S35
S37     34359   S2 AND S3 AND S4
S38        57   S1 AND S37
S39        52   S38 NOT (S24 OR S28 OR S33)
```

S40 33 RD (unique items)
S41 11 S40/2001:2004
S42 22 S40 NOT S41
S43 22 Sort S42/ALL/PY,A

27/6/5 (Item 1 from file: 35)
01134651 ORDER NO: AAD90-31086
INVESTIGATION OF INTERFACE PARAMETERS THAT INFLUENCE THE ELECTROMECHANICAL TRANSFER OF TACTILE INFORMATION
Year: 1990

27/7/1 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

07515111 PMID: 2886883
EC array sensor **concepts and data.**
Matson W R; Gamache P G; Beal M F; Bird E D
Life sciences (ENGLAND) Aug 17 1987, 41 (7) p905-8, ISSN 0024-3205 Journal Code: 0375521
Contract/Grant No.: 1R43-4402566-01; PHS; 1R43-NS24114-01; NS; NINDS; MH/NS-31862; MH; NIMH
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
The use of multiple parameter assays of entire metabolic pathways is potentially a powerful tool for unraveling mechanisms of disorders or drug action and classification of neurological diseases. Coulometric **electrode** series **array sensors** , coupled with liquid chromatography (n-ELC), provide a route to multiplying the resolving power of conventional LC by factors of 10 to 50. Since the original description of the n-ELC concept by Matson et al. (1), fundamental issues of **optimizing sensor** design and integration with **computer** controlled LC systems have been addressed. Femtogram level potential time (ET) separations can now be performed for multiple components in both isocratic and gradient modes. A 56-component isocratic method for the study of the kynurenine system in Huntington's Disease (HD) is presented as an indication of the analytical definitions and nomenclature used to qualify an n-ELC procedure, and an indication of the implications of multiparameter data bases on data handling and experimental design.
Record Date Created: 19870915
Record Date Completed: 19870915

32/6/2 (Item 2 from file: 8)
01090984
Title: TRANSCUTANEOUS CARBON DIOXIDE ELECTRODE DESIGN: HEATED AND NONHEATED ELECTRODES.
Publication Year: 1981

32/6/7 (Item 7 from file: 2)
02935153 INSPEC Abstract Number: A87087347, B87050374, C87043138
Title: A medical imaging system with electrical impedance
Publication Date: 1986

32/6/8 (Item 8 from file: 2)
02923868 INSPEC Abstract Number: A87087284, B87050314, C87042999

Title: A prototype system and reconstruction algorithms for electrical impedance technique in medical body imaging
Publication Date: 1987

32/6/9 (Item 9 from file: 94)
00445090 JICST ACCESSION NUMBER: 87A0345734 FILE SEGMENT: JICST-E
Development of functional examination system of pronunciation by Dento-Palatography and analyses of articulatory movements and speech sounds in mandibular prognathism., 1987

32/6/10 (Item 10 from file: 144)
09477125 PASCAL No.: 91-0267510
A multicharnel FES system for the restoration of motor functions in high spinal cord injury patients: a respiration-controlled system for multijoint upper extremity
1989

32/6/11 (Item 11 from file: 155)
09124583 PMID: 1721199
Use of bipolar recordings from patch-patch and rate sensing leads to distinguish ventricular tachycardia from supraventricular rhythms in patients with implantable cardioverter defibrillators.
Nov 1991

32/6/12 (Item 12 from file: 155)
09124567 PMID: 1721183
A new approach to the prevention of endless loop tachycardia in DDD and VVD pacing.
Nov 1991

32/6/13 (Item 13 from file: 155)
09530263 PMID: 1453185
Experimental and clinical evaluation of a noninvasive reflectance pulse oximeter sensor .
Oct 1992

32/6/14 (Item 14 from file: 155)
09264761 PMID: 1564925
The Dynamic Dento-palatography System: a new approach for evaluating speech.
Mar 1992

32/6/16 (Item 16 from file: 155)
12526054 PMID: 7829798
Comparison of initial detection and redetection of ventricular fibrillation in a transvenous defibrillator system with automatic gain control.
Feb 1995

32/6/17 (Item 17 from file: 155)
13317492 PMID: 9064987
[New aspects of defibrillator therapy]
Neue Aspekte der Defibrillatortherapie.
1996

32/6/18 (Item 18 from file: 155)

13165239 PMID: 8834682
Combined third-generation implantable cardioverter defibrillator with permanent unipolar pacemakers: preliminary observations.
Feb 1996

32/6/19 (Item 19 from file: 155)
13414287 PMID: 9173703
[Atrial sensing and atrioventricular synchrony in single lead VDD pacemakers. Can the appearance of atrial undersensing be predicted?]
Atriale Wahrnehmung und AV-Synchronitat bei "Single-Lead"-VDD-Schrittmachern. Ist das Auftreten von atrialem Undersensing vorhersabar?
Feb 1997

32/6/21 (Item 21 from file: 155)
13777824 PMID: 9474643
Electrogram signals recorded from acute and chronic pacemaker implantation sites in pacemaker patients.
Jan 1998

32/6/23 (Item 23 from file: 155)
14362557 PMID: 10356873
Innovative ambulatory drug delivery system using an electrolytic hydrogel infusion pump.
Jun 1999

32/6/24 (Item 24 from file: 94)
04831201 JICST ACCESSION NUMBER: 01A0174648 FILE SEGMENT: JICST-E
A Clinical Study of Navigation Accuracy During Surgery., 2000

32/6/26 (Item 26 from file: 155)
10753872 PMID: 10875013
[First continuous nerve monitoring in thyroid gland surgery]
Erstes kontinuierliches Nerven-Monitoring in der Schilddrusenchirurgie.
May 2000

32/7,K/1 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

00636117 E.I. Monthly No: EI7707051745 E.I. Yearly No: EI77068820
Title: PROCEEDINGS OF THE ANNUAL CONFERENCE ON ENGINEERING IN MEDICINE AND BIOLOGY, 28TH, 1975.
Author: Anon
Corporate Source: Alliance for Eng in Med and Biol, Chevy Chase, Md
Source: Proceedings of the Annual Conference on Engineering in Medicine and Biology v 17 1975, for 28th Annu Conf, New Orleans, La, Sep 20-24 1975 Sess B2 p 81-94
Publication Year: 1975
CODEN: CEMBAD ISSN: 0589-1019
Language: ENGLISH
Journal Announcement: 7707
Abstract: Session B2 (14 papers) of this conference is concerned with matters relating to cardiac pacemakers. The papers consider errors in cardiac pacing threshold measurements, an in vivo study of cardiac pacemaker optimization by varying the pulse shape, **sensing** properties of pacemaker **electrodes** , new functional **configurations** for adaptive pacemakers, effects of pH on linear ac polarization impedance at Pt and Pd

electrodes, effects of cardiac drugs on pacemaker stimulation and ventricular fibrillation threshold, effects of electrode size and location on pacemaker-induced fibrillation in acute myocardial infarction, a multiparameter comparison of defibrillation: capacitor discharge waveform vs single half-cycle sinewave, way to verify performance of implantable cardiac pacemakers, **patient** self-monitoring for pacemaker follow-up, **computerized** testing of implantable power sources, biological testing of Ag-Hg-Zn rechargeable cell for permanent implanted cardiac pacemakers, ultrasonic power supply system for implanted devices, and a feasibility study of a design for an in vivo piezoelectric power generator. Papers are one-page summaries, some with illustrations, tables, and/or references.

32/7,K/4 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC

02326850 INSPEC Abstract Number: A84093958, B84056146, C84046777
Electrical stimulation of paralyzed limbo under feedback computer **control**
Author(s): Petrofsky, J.S.; Phillips, C.A.
Author Affiliation: Nat. Center for Rehabilitation Engng., Wright State Univ., Dayton, OH, USA
Conference Title: Frontiers of Engineering and Computing in Health Care - 1983. Proceedings of the Fifth Annual Conference p.677
Editor(s): Gerhard, G.C.; Miller, W.T.
Publisher: IEEE, New York, NY, USA
Publication Date: 1983 Country of Publication: USA 735 pp.
Conference Sponsor: IEEE
Conference Date: 10-12 Sept. 1983 Conference Location: Columbus, OH, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P)
Abstract: Summary form only given, as follows. Obtaining smooth, coordinated movement in the body requires extensive feedback from **sensors** located throughout the periphery. A system has been modeled using electronic **sensors** involving microprocessor-controlled electrical stimulation of muscle. It has been extensively tested on male and female paraplegic and quadriplegic subjects. This system allows automatic control of balance and rudimentary walking under voluntary control. The link to the thought process is achieved through **pattern** recognition of movement of shoulders. **Electrical stimulation** has been applied to the appropriate muscles in the abdominal area and legs to allow the initiation of walking movements. **Sensors** in the hips, knee, ankle, and feet provide sensory feedback to the **computer** to show the progress of the program. The current system has led to the initiation of the development of the multiprocessor system for portable use.
Subfile: A B C
...Descriptors: **computerised** control...
... **patient** treatment
...Identifiers: feedback **computer** control...
...electronic **sensors** ;

32/7,K/5 (Item 5 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

01851410 E.I. Monthly No: EIM8501-005920
Title: CHARACTERIZATION FACILITY FOR BIOMEDICAL ELECTRODE STUDIES.
Author: Tashayyod, D.; Onaral, B.
Corporate Source: Whelan Associates Inc, Blue Bell, PA, USA

Conference Title: Proceedings of the 37th Annual Conference on Engineering in Medicine and Biology 1984, Volume 26.
Conference Location: Los Angeles, CA, USA Conference Date: 19840915
Sponsor: Alliance for Engineering in Medicine & Biology, Bethesda, MD, USA
E.I. Conference No.: 05690
Source: Proceedings of the Annual Conference on Engineering in Medicine and Biology 37th. Publ by Alliance for Engineering in Medicine & Biology, Bethesda, MD, USA p 103
Publication Year: 1984
CODEN: CEMBAD ISSN: 0589-1019
Language: English
Document Type: PA; (Conference Paper)
Journal Announcement: 8501
Abstract: Many industrial and university research laboratories are actively developing new **sensing** and **stimulating electrodes** based on novel materials including conducting polymers, membranes and solid-state devices for a wide variety of biomedical applications. However, the complete characterization of the interfaces in terms of their electrical, electrochemical and biocompatibility properties presents yet unresolved problems and hinders their optimum design. The Bio-Electrode Research Laboratory (BERL) was formed a year ago at Drexel University. The group has adopted a unified approach based on methods on linear and nonlinear systems engineering, signal processing, **computer** -aided experiment automation as applied to bioelectrochemistry, bioelectric sensing and stimulation.
Identifiers: ELECTRODE EVALUATION AND **DESIGN** ; DESIRED SPECIFICATION CHECKLIST; COMPUTERIZED SIGNAL AND SYSTEM ANALYSIS; NEW MATERIALS EVALUATION; SUMMARY ONLY

32/7,K/13 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
09530263 PMID: 1453185
Experimental and clinical evaluation of a noninvasive reflectance pulse oximeter sensor .
Takatani S; Davies C; Sakakibara N; Zurick A; Kraenzler E; Golding L R; Noon G P; Nose Y; DeBakey M E
Department of Surgery, Baylor College of Medicine, Houston, TX 77030.
Journal of clinical monitoring (UNITED STATES) Oct 1992, 8 (4) p257-66, ISSN 0748-1977 Journal Code: 8506707
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
The objective of this study was to evaluate a new reflectance pulse oximeter **sensor** . The prototype **sensor** consists of 8 light-emitting diode (LED) chips (4 at 665 nm and 4 at 820 nm) and a photodiode chip mounted on a single substrate. The 4 LED chips for each wavelength are spaced at 90-degree intervals around the substrate and at an equal radial distance from the photodiode chip. An optical barrier between the photodiode and LED chips prevents a direct coupling effect between them. Near-infrared LEDs (940 nm) in the **sensor** warm the tissue. The microthermocouple mounted on the **sensor** surface measures the temperature of the skin- **sensor** interface and maintains it at a present level by servoregulating the current in the 940-nm LEDs. An animal study and a clinical study were performed. In the animal study, 5 mongrel dogs (weight,

10-20 kg) were anesthetized, mechanically ventilated, and cannulated. In each animal, arterial oxygen saturation (SaO2) was measured continuously by a standard transmission oximeter probe placed on the dog's earlobe and a reflectance oximeter **sensor** placed on the dog's tongue. In the first phase of the experiment, signals from the reflectance **sensor** were recorded while the dog was immersed in ice water until its body temperature decreased to 30 degrees C. In the second phase, the animal's body temperature was normal, and the oxygen content of the ventilator was varied to alter the SaO2. In the clinical study, 18 critically ill **patients** were monitored perioperatively with the prototype reflectance **sensor** . The first phase of the study investigated the relationship between local skin temperature and the accuracy of oximeter readings with the reflectance **sensor** . Each measurement was taken at a high saturation level as a function of local skin temperature. The second phase of the study compared measurements of oxygen saturation by a reflectance oximeter (SpO2[r]) with those made by a co-oximeter (SaO2[IL]) and a standard transmission oximeter (SpO2[t]). Linear regression analysis was used to determine the degree of correlation between (1) the pulse amplitude and skin temperature; (2) SpO2(r) and SaO2(IL); and (3) SpO2(t) and SaO2(IL). Student's t test was used to determine the significance of each correlation. The mean and standard deviation of the differences were also computed. In the animal study, pulse amplitude levels increased concomitantly with skin temperature (at 665 nm, r = 0.9424; at 820 nm, r = 0.9834; p < 0.001) and SpO2(r) correlated well with SaO2(IL) (r = 0.982; SEE = 2.54%; p < 0.001).(ABSTRACT TRUNCATED AT 400 WORDS)

Record Date Created: 19930106
Record Date Completed: 19930106
Descriptors: Monitoring, Physiologic--instrumentation--IS; *Oximetry --instrumentation--IS; *Signal Processing, **Computer** -Assisted --instrumentation--IS; Adult; Aged; Animals; Critical Care; Dogs; **Electrodes** ; Equipment **Design** ; Hemoglobins--analysis--AN; Infant, Newborn; Middle Aged; Oxygen Inhalation Therapy; Oxyhemoglobins--analysis --AN

32/6/15 (Item 15 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
10128712 PMID: 8023534
[Fetal reflectance pulse oximetry sub partu. Experiences--prognostic significance and consequences--goals]
Fetale Reflexionspulsoxymetrie sub partu. Erfahrungen--Prognostische Bedeutung und Konsequenz--Ziele.

32/7,K/20 (Item 20 from file: 73)
DIALOG(R)File 73:EMBASE
(c) 2004 Elsevier Science B.V. All rts. reserv.
07556074 EMBASE No: 1999045225
Development and evaluation of hand pointing system for functional electrical stimulation
Muraoka Y.; Qi T.; Tomita Y.; Honda S.
Y. Muraoka, Graduate Sch. of Sci. and Technology, Keio University, Yokohama Japan
Japanese Journal of Medical Electronics and Biological Engineering (JPN. J. MED. ELECTRON. BIOL. ENG.) (Japan) 1998, 36/4 (66-70)
CODEN: IYSEA ISSN: 0021-3292
DOCUMENT TYPE: Journal; Article

LANGUAGE: JAPANESE SUMMARY LANGUAGE: ENGLISH; JAPANESE
NUMBER OF REFERENCES: 6

Paralyzed limbs of central-nervous-system impairment patients can be restored by electrically stimulated muscle contraction. This principle is called a functional **electrical stimulation** (FES). In their daily lives, the function of reaching to an object is one of the essential functions as shown in eating motion. We developed a system that enables a hand to move to desired positions by FEs applied to the muscles of the arm. A subject puts on a cap, which mounted a red pointing light, and a position sensor on the wrist. The forearm is laid on an orthosis that can move only in horizontal plane. The pointing light gives the red beam whose diameter is approximately 15 cm when it was illuminated from the height of 30 cm on a plane. The subject projects the light beam from his head to a position sensor on his wrist. It detects the center of the illuminated area with differentially arranged phototransistors. A computer calculates stimulation patterns from the position data in order to guide the hand to the position, and a stimulator provides current pulses to the muscles of the upper limbs. The above procedure is repeated until the hand reaches to the target. While the light is not directed on the sensor, the position of hand is maintained at the current position. Experiments with a 22-year-old normal male subject were carried out to test the system. The light pointed to any targets from 30 cm high and his hand moved to the target position from the border of illuminated area. This system has the following advantages. 1) The hand can be moved from any initial position to any target position in horizontal plane. 2) The pointing light does not prevent subject's motion, and is easy to use.

32/6/22 (Item 22 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2004 Institution of Electrical Engineers. All rts. reserv.
6300534 INSPEC Abstract Number: B1999-08-7510-038, C1999-08-7330-278
Title: Implantable biosensor telemetry and interface using an optocoupler

32/7,K/25 (Item 25 from file: 94)
DIALOG(R)File 94:JICST-EPlus
(c)2004 Japan Science and Tech Corp(JST). All rts. reserv.
04616930 JICST ACCESSION NUMBER: 00A0534117 FILE SEGMENT: JICST-E
Online Learning Method for Functional Electrical Stimulation.
MARUISHI MASAHARU (1); MANO YUKIO (1); YOKOI HIROFUMI (2); NISHIKAWA DAISUKE (2); YU W (2)
(1) Hokkaido Univ.; (2) Hokkaido Univ., Grad. Sch.
Hokkaido Rihabiriteshon Gakkai Zasshi(Hokkaido Rehabilitation), 2000, VOL.28, PAGE.3-7, FIG.4, REF.3
JOURNAL NUMBER: Y0952AAS ISSN NO: 0304-2081
UNIVERSAL DECIMAL CLASSIFICATION: 616-082 616.7
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: We have begun development of a system which can analyze surface electromyographic (EMG) activity and follow several patterns of control commands for functional electrical stimulation (FES). A 64-year-old male suffering from left hemiparesis due to cerebral hemorrhage underwent FES of his left leg with this system. Electrical stimulation was performed on peroneal, tibial, femoral, and inferior gluteal nerves, as well as on motor points of hamstrings, with a pulse wave of

20Hz through percutaneous intramuscular electrodes. A sensor relayed surface EMG activity, which was monitored and analyzed by a computer to control patterns of electrical **stimulation** . We further used an on-line learning method in which the computer "learned how" to select the stimulation pattern accurately from patient's surface EMG feedback. The patient could control several patterns by means of this system. (author abst.)

36/6/3 (Item 1 from file: 34)
01069008 Genuine Article#: FU239 Number of References: 33
Title: FEEDBACK-CONTROL OF CORONAL PLANE HIP ANGLE IN PARAPLEGIC SUBJECTS USING FUNCTIONAL NEUROMUSCULAR STIMULATION (Abstract Available)

36/6/4 (Item 1 from file: 144)
12371847 PASCAL No.: 96-0017708
Perspectives on the role of afferent signals in control of motor neuroprostheses
1995

36/6/5 (Item 1 from file: 2)
03339985 INSPEC Abstract Number: B89026982, C89022192
Title: Sound alerting aids for the profoundly deaf
Publication Date: 1988

36/7,K/1 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
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12858452 PMID: 8544475
A feedback controlled silicon microprobe for quantitative mechanical stimulation of nerve and tissue.
Jackson D; Kane B J; Monroe S; Li J; Storment C W; Kovacs G T; Tanelian DL
University of Texas Southwestern Medical Center, Department of Anesthesiology and Pain Management, Dallas 75235-9068, USA.
Journal of neuroscience methods (NETHERLANDS) Aug 1995, 60 (1-2) p157-63, ISSN 0165-0270 Journal Code: 7905558
Contract/Grant No.: NS 28646-02; NS; NINDS
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
The ability to apply and control the force and force velocity of mechanical stimulation is essential for the study of mechanoelectric transduction and adaptation processes. Silicon micromachining technology was used to produce miniature (20-70 microns wide) mechanical microprobes. Passive polysilicon, piezoresistive, force **sensing** elements were deposited onto the boron-doped epitaxial silicon and the individual devices were chemically etched from the bulk wafer. These microprobes display a linear force versus output voltage relationship. Stimulation forces up to 2 mN can be generated with a measurement resolution of 1.5 microN. The probes were mounted onto circuit board holders and their output sent to a proportional-integral **controller** which drives an electromagnetic actuator. By using this force-feedback control circuit coupled to a PC it is possible to define any **stimulus** wave form **pattern** and independently control and measure the actual stimulus force and velocity. A **computer** controlled 3-axis stepper motor (0.025 micron step capability) manipulator is used to position the silicon microprobe-actuator assembly relative to

the mechanoreceptive field. **Sensor** feedback control coupled to the 3-axis stepper motor manipulator allows automatic touchdown control and/or preloading of the probe prior to stimulation. Three-dimensional topographic manipulator feedback position control allows automated receptive field mapping.
Record Date Created: 19960214
Record Date Completed: 19960214

36/7,K/2 (Item 1 from file: 73)
DIALOG(R)File 73:EMBASE

01853591 EMBASE No: 1981160748
Microelectronics and neural prostheses
White R.L.
Dept. Electr. Engin., Stanford Univ., Stanford, Calif. 94305 United States
Annals of Biomedical Engineering (ANN. BIOMED. ENG.) (United States) 1980, 8/4-6 (317-332)
CODEN: ABMEC
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH
The realization of effective neural prostheses requires both understanding of the neural physiological substrate of the function and the availability of hardware, stimulation electronics, **electrodes**, **sensors** , and information processing electronics, to execute the required function. Microelectronics, especially custom and semicustom integrated circuits, have effectively removed some of these barriers. Particularly in the area of implantable stimulation electronics, custom integrated circuits and advanced hermetic packaging techniques have been developed so that it is possible to make very small, long-lived multichannel stimulation systems. Similarly, the availability of low-power CMOS microprocessors, logic and memory components makes it possible to execute complex information processing in small, low-power portable systems. The principal technological bottlenecks in neural prostheses remain stimulation electrodes and physiological **sensors** . The techniques underlying microelectronic photolithographic fabrication may also make possible the 'solution' of the electrode and **sensor** problems. In our auditory prosthesis project, we have photolithographic **electrode arrays** of both rigid and flexible character now nearing operational status. These electrodes are probably generalizable to a fairly wide number of prostheses applications. A number of **sensors** , especially those of pressure, motion and temperature, are also yielding to photolithographic fabrication. The **sensor** problem, however, for such physiologic parameters as ionic concentration remains the most difficult to conquer. Examples and illustrations of the state-of-the-art in these areas, as achieved by microelectronic techniques, will be given.
MEDICAL DESCRIPTORS:
*brain depth **stimulation** ; *hearing aid; * **nerve stimulation** ; * photostimulation
short survey; **computer** analysis; central nervous system; peripheral nervous system; auditory system; nervous system

36/7,K/6 (Item 1 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01353662 I99110355300

Finite state controller for functional electrical stimulation: software implementation

Feng Wang; Andrews, BJ
Dept. of Biomed. Eng., Alberta Univ., Edmonton, Alta., CDN
Proceedings of the 20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Vol.20 Biomedical Engineering Towards the Year 2000 and Beyond (Cat. No.98CH36286), 29 Oct.-1 Nov. 1998, Hong Kong, China1998
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-7803-5164-9
ABSTRACT:
Finite state machine provides a flexible framework to **design controllers** for Functional **Electrical Stimulation** (FES). The finite state machine **controller** allows the implementation of different control strategies under different states. This paper describes the software implementation of finite state machine **controller** for a portable FES stimulator based on 68332 microcontroller. The states, actions and state transition rules are defined in a text based **controller** definition file which is edited by users and downloaded to the portable FES stimulator from PC via serial RS232 link. The definition file also defines the stimulation output channels, **sensor** input channels, and constants which are used in actions and rules. Several commonly used stimulation actions such as pulsewidth/frequency change, pulsewidth ramp are pre-defined. More complex **controllers** like fuzzy logic **controller** or PID **controller** can be incorporated into the finite state **controller** using customized C **controller** function. This finite state FES **controller** is easy to use for ordinary users without **computer** programming knowledge, yet flexible enough to incorporate complex control functions for expert users who can write the customized C **controller** function.
DESCRIPTORS: BIOCONTROL; FINITE AUTOMATA; FUZZY CONTROL; EXPERT SYSTEMS; MICROCONTROLLERS; **NERVE STIMULATION** ; PID CONTROL; FES...
...FUNCTIONAL ELECTRIC STIMULATION; PID **CONTROLLERS**

43/6/1 (Item 1 from file: 73)
01460555 EMBASE No: 1979181547
Responses of feline esophagus to cervical vagal stimulation
1978

43/6/3 (Item 3 from file: 155)
08777807 PMID: 2277568
Demarcation and localization of primary sensor and motor areas in human cortex by cortical somatosensory. Evoked potential (Co-SEP) during operation in surgery for epilepsy and intracranial tumor.
Sep 1990

43/6/6 (Item 6 from file: 155)
09221109 PMID: 1797542
Sympathetic skin response **in scleroderma.**
Dec 1991

43/6/16 (Item 16 from file: 73)
07839290 EMBASE No: 1999078533
Central Fos expression in fetal and adult sheep after intraperitoneal hypertonic saline
1999

43/6/17 (Item 17 from file: 73)
10967555 EMBASE No: 2001004882
A subthreshold persistent sodium current mediates bursting in rat subfornical organ neurones
01 DEC 2000

43/6/18 (Item 18 from file: 73)
10717650 EMBASE No: 2000205858
Volumetry of the urinary bladder with implantable ultrasound sensors
VOLUMETRIE DER HARNBLASE MITTELS IMPLANTIERBAREN ULTRASCHALLSENSOREN
2000

43/6/19 (Item 19 from file: 73)
10703892 EMBASE No: 2000192525
Gustatory neuron types in the periphery: A functional perspective
01 APR 2000

43/6/20 (Item 20 from file: 34)
08469723 Genuine Article#: 289DK Number of References: 34
Title: Subnanoliter volume wall-jet cells combined with interdigitated microarray electrode and enzyme modified planar microelectrode (ABSTRACT AVAILABLE)
Publication date: 20000301

43/6/21 (Item 21 from file: 155)
10751854 PMID: 10872248
Volumetry of the urinary bladder with implantable ultrasound sensors]
Volumetrie der Harnblase mittels implantierbaren Ultraschallsensoren.
May 2000

43/6/22 (Item 22 from file: 155)
10665441 PMID: 10779106
Measurement of external pressures generated by nerve cuff electrodes.
Mar 2000

43/7,K/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
08247546 PMID: 2767905
Short latency somatosensory evoked responses **to median** nerve stimulation **in healthy humans: electric and magnetic recordings.**
Rossini P M; Narici L; Romani G L; Traversa R; Cecchi L; Cilli M; Urbano A
Neurofisiologia Clinica-Dipartimento di Sanita Pubblica-Universita di Roma, Tor Vergata, Italy.
International journal of neuroscience (ENGLAND) May 1989, 46 (1-2) p67-76, ISSN 0020-7454 Journal Code: 0270707
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Somatosensory Evoked Potentials (SEPs) and Somatosensory Evoked magnetic Fields (SEFs) to median **nerve stimulation** at wrist were recorded in 5 healthy subjects and the components between 15 and 30 ms after the stimulus were evaluated on the hemiscalp contralateral to the stimulated wrist. SEPs were measured by means of a 32-channel recorder and compared with SEFs

obtained via multiple measurements with a 4-channel **sensor** . Equivalent dipole localization was carried out for the magnetic components peaking at about 15, 20 and 24 ms. The scalp distribution of SEPs, illustrated by bit mapped color images, were qualitatively explained by three separate sources. The first is described as a tangentially oriented dipole placed behind the Central Sulcus and responsible for the parietal N20-"late P25" waves and for the frontal P20-N30 ones. The second is represented by a radieal dipole placed just in front of the Central Sulcus and pointing towards the motor strip, responsible for the rolandic P22 component. The third is just behind the Central Sulcus and is radieally oriented towards the surface of the postcentral sensory area for the "early P25" parietal wave. The SEFs distributions, illustrated by color isofield contour maps, were quantitatively explained by a unique tangential dipole localized, with good resolution, well behind the Sulcus for the 15 ms waves and slightly frontal to this site for the waves peaking at around 20 and 24 ms. The equivalent dipole has been localized at a depth of about 5 cm (15 ms component), 2 cm (20 ms components) and 4 cm (24 ms component), across the studied subjects. It is stressed that the dipole responsible for the magnetic **pattern** is likely to be the same tangential dipole responsible for a part of the electric **pattern** . Due to their radieal orientation, the other two dipoles, proposed for the SEPs maps, would be mostly undetectable by a magnetic investigation.
Record Date Created: 19890925
Record Date Completed: 19890925
; Adult; Electric Stimulation; Electromagnetic Fields; **Reaction** Time --physiology--PH

43/7,K/4 (Item 4 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

03514934 E.I. Monthly No: EIM9211-058812
Title: Artificial control of muscle by endoneural multi electrode stimulation and sensing .
Author: Rutten, Wim L. C.; Bouwman, Raymond L. M.
Conference Title: Proceedings of the 13th Annual International Conference of the IEEE Engineering in Medicine and Biology Society
Conference Location: Orlando, FL, USA Conference Date: 19911031
Sponsor: IEEE Engineering in Medicine & Biology Soc
E.I. Conference No.: 17015
Source: Proceedings of the Annual Conference on Engineering in Medicine and Biology v 13 pt 2. Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA (IEEE cat n 91CH3068-4). p 894-895
Publication Year: 1991
CODEN: CEMBAD ISSN: 0589-1019 ISBN: 0-7803-0216-8
Language: English
Document Type: PA; (Conference Paper) Treatment: A; (Applications); X; (Experimental)
Journal Announcement: 9211
Abstract: Artificial electrical **stimulation** of motor **nerves** for muscle control can be made selective by using intrafascicular micro electrode **arrays** which contact many individual or small groups of nerve fibers. If at the same time the electrode **arrays** could record afferent information from the stimulated muscle's spindles and tendon organs, closed loop control of muscles would come into view. This requires 1) research into the possibilities of recording afferent signals using the micro electrode **arrays** and 2) identification of a stimulated fiber as an alpha

motoneuron by evaluation of afferent **response patterns** . First results are presented. 3 Refs.

43/7,K/5 (Item 5 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

00610629 F92080093970
A probe for measuring current density during magnetic stimulation
(Ein Sensor zur Bestimmung der Stromdichte waehrend magnetischer Stimulation)
Tay, G; Chilbert, MA; Battocletti, J; Sances, Ajr; Swiontek, T
Marquette Univ., Milwaukee, USA
Biomedical Instrumentation and Technology, v25, n3, pp220-228, 1991
Document type: journal article Language: English
Record type: Abstract
ISSN: 0899-8205
ABSTRACT:
Time-varying magnetic fields induce currents in conductive media, and when the induced current is large enough in excitable tissue, stimulation occurs. This phenomenon has been applied to the human brain and peripheral nerves for diagnostic evaluation of the neural system. One important aspect that is presently unknown is the current level necessary in tissue for stimulation induced by magnetic fields. This study presents a method of measuring the induced current density from pulsed magnetic fields in vitro and in vivo. The current-density probe was inserted into three concentrations of saline and into the brains of ten anesthetized cats. Two **stimulation** systems with coils 9 cm and 5 cm in diameter were used. The two systems provided sinusoidal and pulsatile coil currents. Measurements made in saline were compared with those calculated theoretically for a semi-infinite medium. The measured values were within 5 % of the calculated values. Measurements made in the cat brain showed a 67 % decrease compared with the theoretic model. This variance is attributed to the finite bounds of the skull. The results indicate that direct measurement of current density is possible. Subsequent measurements will aid in the design of improved magnetic **stimulation** systems.

43/7,K/7 (Item 7 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

02473839 Genuine Article#: LE483 Number of References: 378
Title: MAGNETOENCEPHALOGRAPHY - THEORY, INSTRUMENTATION, AND APPLICATIONS TO NONINVASIVE STUDIES OF THE WORKING HUMAN BRAIN
Author(s): HAMALAINEN M; HARI R; ILMONIEMI RJ; KNUUTILA J; LOUNASMAA OV
Corporate Source: HELSINKI UNIV TECHNOL,LOW TEMP LAB/SF-02150 ESPOO//FINLAND/
Journal: REVIEWS OF MODERN PHYSICS, 1993, V65, N2 (APR), P413-497
ISSN: 0034-6861
Language: ENGLISH Document Type: ARTICLE
Abstract: Magnetoencephalography (MEG) is a noninvasive technique for investigating neuronal activity in the living human brain. The time resolution of the method is better than 1 ms and the spatial discrimination is, under favorable circumstances, 2-3 mm for sources in the cerebral cortex. In MEG studies, the weak 10 ff-1 pT magnetic fields produced by electric currents flowing in neurons are measured with multichannel SQUID (superconducting quantum interference device) gradiometers. The sites in the cerebral cortex that are activated by a

stimulus can be found from the detected magnetic-field distribution, provided that appropriate assumptions about the source render the solution of the inverse problem unique. Many interesting properties of the working human brain can be studied, including spontaneous activity and signal processing following external stimuli. For clinical purposes, determination of the locations of epileptic foci is of interest. The authors begin with a general introduction and a short discussion of the neural basis of MEG. The mathematical theory of the method is then explained in detail, followed by a thorough description of MEG instrumentation, data analysis, and practical construction of multi-SQUID devices. Finally, several MEG experiments performed in the authors' laboratory are described, covering studies of evoked responses and of spontaneous activity in both healthy and diseased brains. Many MEG studies by other groups are discussed briefly as well.

...Research Fronts: 91-7563 002 (YBA2CU3O7-DELTA GRAIN-BOUNDARY JUNCTION DC SQUIDS; QUANTUM DYNAMICS; INHOMOGENEOUS TRIANGULAR JOSEPHSON **ARRAYS**)
91-0194 001 (SUPERCONDUCTING YBA2CU3O7-X THIN-FILMS; PLASMA-ENHANCED METALORGANIC CHEMICAL VAPOR-DEPOSITION; HIGH...
...NMR RELAXATION-TIMES; NUCLEAR-MAGNETIC-RESONANCE IN PARASITOLOGY)
91-5024 001 (VISUAL EVOKED-POTENTIALS; MEDIAN **NERVE** -STIMULATION; CORTICAL SURFACE)
91-5066 001 (LOW-FREQUENCY 1/F NOISE MEASUREMENTS; CONDUCTANCE FLUCTUATIONS IN...

43/7,K/8 (Item 8 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
(c) format only 2004 The Dialog Corp. All rts. reserv.
10001940 PMID: 8122545
A newly designed nerve monitor for microneurosurgery: bipolar constant current nerve stimulator and movement detector with a pressure sensor.
Shibuya M; Mutsuga N; Suzuki Y; Sugita K
Department of Neurosurgery, Nagoya University, Japan.
Acta neurochirurgica (AUSTRIA) 1993, 125 (1-4) p173-6, ISSN 0001-6268 Journal Code: 0151000
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
The authors describe a newly designed nerve monitor which is useful for numerous microneurosurgical procedures. Standard bipolar forceps are used to apply constant current **stimulation**. Muscle contraction evoked by the **stimulation** is detected by a small disc-shaped pressure **sensor** taped to the overlying skin. The responses are monitored both quantitatively on a liquid crystal display and qualitatively through an on-off auditory signal. Surgery can proceed without interruption. This apparatus can safely and reliably monitor the facial nerve, nerves involved in eye movements, lower cranial nerves and spinal nerves. This portable system weights only 1.8 kg and can easily be used by a neurosurgeon.
Record Date Created: 19940407
Record Date Completed: 19940407
; Cranial Nerve Neoplasms--physiopathology--PP; Equipment **Design** ; Eye Movements--physiology--PH; Facial Nerve--physiopathology--PP; Facial Nerve --surgery--SU; Motor Neurons--physiology...

43/7,K/9 (Item 9 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

(c) 2004 Inst for Sci Info. All rts. reserv.
04531505 Genuine Article#: TQ662 Number of References: 18
Title: ACTIVATION OF IPSILATERAL PRIMARY SENSORIMOTOR CORTEX BY MEDIAN NERVE - STIMULATION
Author(s): KORVENOJA A; WIKSTROM H; HUTTUNEN J; VIRTANAN J; LAINE P; ARONEN HJ; SEPPALAINEN AM; ILMONIEMI RJ
Corporate Source: UNIV HELSINKI,CENT HOSP,DEPT RADIOL,HAARTMANINKATU 4/SF-00290 HELSINKI//FINLAND/; UNIV HELSINKI,CENT HOSP,DEPT NEUROL/SF-00290 HELSINKI//FINLAND/; JORVI HOSP,DEPT CLIN NEUROPHYSIOL/SF-02740 ESPOO//FINLAND/; HELSINKI UNIV,DEPT PSYCHOL,COGNIT BRAIN RES UNIT/HELSINKI//FINLAND/; NEUROMAG LTD/HELSINKI//FINLAND/; HELSINKI UNIV,CENT HOSP,MED ENGN CTR,BIOMAG LAB/HELSINKI//FINLAND/
Journal: NEUROREPORT, 1995, V6, N18 (DEC 15), P2589-2593
ISSN: 0959-4965
Language: ENGLISH Document Type: ARTICLE
Abstract: WE report evidence for activation of ipsilateral primary sensorimotor cortex (SMI) after median **nerve stimulation** recorded with magnetoencephalography (MEG). We measured somatosensory evoked magnetic fields (SEFs) to median **nerve stimulation** with a 122-channel helmet-shaped magnetometer in 10 healthy subjects. In five, the magnetic field **patterns** suggested long-latency activation of the ipsilateral SMI. Source locations found by current dipole fitting corresponded to the SMI hand area, as determined by contralateral stimulation. Further evidence for the origin of the ipsilateral **responses** in SMI was provided by the suppression of these **responses** during movement of the contralateral fingers. Sensory input to ipsilateral SMI could play a role in sensorimotor integration of bilateral movements.

43/7,K/10 (Item 10 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci
(c) 2004 Inst for Sci Info. All rts. reserv.
04271945 Genuine Article#: RP640 Number of References: 17
Title: THE PTB 83-SQUID SYSTEM FOR BIOMAGNETIC APPLICATIONS IN A CLINIC
Author(s): DRUNG D
Corporate Source: PHYS TECH BUNDESANSTALT,ABBESTR 10-12/D-10587 BERLIN//GERMANY/
Journal: IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY, 1995, V5, N2 (JUN) , P2112-2117
ISSN: 1051-8223
Language: ENGLISH Document Type: ARTICLE
Abstract: The PTB 83-SQUID (superconducting quantum interference device) system is described which is operated in a clinical environment. Integrated de SQUID magnetometers with additional positive feedback (APF) are used in order to realize electronic first- or second-order gradiometer **configurations**. The dewar for the system has a flat bottom It allows the detection of vertical (B-z) and horizontal (B-x,B-y) field components: 49 sensors (plus 14 reference magnetometers) are sensitive for B-Z and 14 sensors (plus 6 reference magnetometers) for B-x,B-y. The system is installed inside a standard shielded room (Vakuumschmelze type AK3b) in the Klinikum Benjamin Franklin, Steglitz, Berlin A typical white noise level of 2.5 fT/root Hz has been measured in the first-order gradiometer mode. Due to the very low system noise level it became possible for the first time to detect the extremely weak neuromagnetic fields (5-10 fT peak amplitude) generated by the

nerve roots deep in the lower back which are evoked by electrical nerve stimulation at the foot (200 Hz system bandwidth 8000 responses averaged).

43/7,K/11 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0009817064 BIOSIS NO.: 199598284897
Multichannel detection of magnetic compound action fields with stimulation of the index and little fingers
AUTHOR: Hashimoto I (Reprint); Mashiko T; Mizuta T; Imada T; Iwase Y; Okazaki H; Yoshikawa K
AUTHOR ADDRESS: Dep. Psychophysiol., Tokyo Inst. Psychiatry, 2-1-8 Kamikitazawa, Setagaya-kU, Tokyo 156, Japan**Japan
JOURNAL: Electroencephalography and Clinical Neurophysiology 97 (2): p 102-113 1995 1995
ISSN: 0013-4694
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English
ABSTRACT: Magnetic compound action fields (CAFs) over the right arm were measured from 63 **sensor** positions with two 7-channel SQUID gradiometer systems following **electrical stimulation** of the index and little fingers as well as the ring finger separately. The wave forms of the CAFs were primarily biphasic, corresponding to the depolarization and repolarization currents of the stimulated nerves. Maximum amplitudes of the CAFs were 60-140 fT for the index finger stimulation and 40-90 fT for the little finger **stimulation**. The field mapping of the CAFs revealed a propagating quadrupolar **pattern** with different distributions for the index and little fingers. The results agree with the anatomical location of the median and ulnar nerves for the index and little finger **stimulation** respectively. The isofield maps, due, to ring finger **stimulation,** showed complex patterns as a result of simultaneous activation of the median and ulnar nerves. By comparing the amplitudes of the maxima of the CAFs due to index finger **stimulation** with those after median nerve **stimulation** at the wrist, the numerical ratios of the constituent digital nerve fibers for the index finger within the median nerve at the wrist were estimated. The ratios of 0.14-0.41 (mean 0.27), determined with measurement of the CAFs, are fairly consistent with those calculated from the reported histological data.

43/7,K/13 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

13130273 PMID: 8798073
Application of tilt sensors **in functional electrical stimulation.**
Dai R; Stein R B; Andrews B J; James K B; Wieler M
Division of Neuroscience, University of Alberta, Edmonton, Canada.
IEEE transactions on rehabilitation engineering - a publication of the IEEE Engineering in Medicine and Biology Society (UNITED STATES) Jun 1996, 4 (2) p63-72, ISSN 1063-6528 Journal Code: 9413994
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Tilt **sensors** , or inclinometers have been investigated for the control

of Functional **Electrical Stimulation** (FES) to improve the gait of persons who had a stroke or incomplete spinal cord injury (SCI). Different types of tilt **sensors** were studied for their characteristics and their performance in measuring the angular displacement of leg segments during gait. Signal **patterns** of the lower leg with inertial tilt **sensors** were identified with control subjects and subjects with footdrop who are being stimulated during level walking. To minimize acceleration **responses** when the foot swings or hits the ground, we use low-pass filtering (1.5-2 Hz). A finite state approach allows the **sensor** fixed on the shank to effectively detect the step intention in a population of stroke and incomplete SCI subjects and to control the FES. When the lower leg tilts backward, the common peroneal **nerve** is **stimulated** to bring the foot up and forward. We have designed a miniature footdrop **stimulator** with a magnetoresistive tilt **sensor** built in, so no external **sensor** cables are required. The thresholds to turn the stimulator on and off can be adjusted, as well as the maximum period of stimulation and the minimum interval between periods of stimulation. This device features several important advantages over traditional AFO's or stimulators controlled by foot switches. Initial trials with stroke and SCI subjects have demonstrated substantial gait improvement for some subjects, while most liked the good cosmesis and ease of using the device with a tilt **sensor** .
Record Date Created: 19961022
Record Date Completed: 19961022

43/7,K/14 (Item 14 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

13756901 PMID: 9451781
Characterization and optimization of microelectrode arrays **for in vivo nerve signal recording and stimulation.**
Blau A; Ziegler C; Heyer M; Endres F; Schwitzgebel G; Matthies T; Stieglitz T; Meyer J U; Gopel W
Institute of Physical and Theoretical Chemistry IPTC, University of Tubingen, Germany.
Biosensors & bioelectronics (ENGLAND) 1997, 12 (9-10) p883-92, ISSN 0956-5663 Journal Code: 9001289
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed
Revealing the complex signal-processing mechanisms and interconnection **patterns** of the nervous system has long been an intriguing puzzle. As a contribution to its understanding the optimization of the impedance behavior of implantable **electrode arrays** with via holes is discussed here. Peripheral axons will regenerate through these holes allowing for simultaneous **nerve stimulation** and signal recording. This approach is part of the ESPRIT project INTER and may eventually lead to devices driving sensory motor prosthesis with closed loop control. In the first set of experiments, micromachined platinum electrode **arrays** were prepared, characterized and optimized for nerve signal recording. The results of these studies are based on impedance spectroscopy and microscopic techniques. Equivalent circuits were modeled describing formally the electrical **response** behavior with ohmic resistances between 500 omega and 10 k omega. To attain low impedances for all electrodes on the INTER device, platinum from H2PtCl6 was electrodeposited, and sputter technology as well as electrochemical deposition from H2IrCl6 solution were used to

produce thin iridium films. For the former, a lift-off process was established at one of the institutes to generate electrode structures with a line width of 5 microns. As a result in all three cases the electrodes showed almost constant impedances over the entire frequency range (10 Hz-1 kHz), which is relevant for nerve signal recording. In the second set of experiments, electrodes were optimized to allow for **nerve stimulation** . For this purpose, the charge delivery capacity (CDC) had to be increased and the impedance had to be decreased. Iridium oxide is the material of choice, because its CDC is much higher than the CDC of platinum at 75 microC/cm2 (Ziaie et al., 1991, IEEE **Sensors** & Actuators Transducers, 6, 124-127). A significant increase of the electrochemically active surface of the electrode structures could be observed by measuring the surface roughness. In first experiments, an activated iridium oxide film was formed with cyclic voltammetry and was evaluated using scanning force microscopy and impedance spectroscopy. The evaluation of the cyclic voltammograms showed a CDC up to 400 mC/cm2 for sputter deposited and oxidatively treated iridium films. Further investigations are directed towards increasing the stability of the iridium oxide electrodes with regard to long-term implants. Parallel experiments aim at the controlled axon adhesion without changing the impedance behavior of the described electrodes.

Record Date Created: 19980219
Record Date Completed: 19980219

43/7,K/15 (Item 15 from file: 155)

DIALOG(R)File 155:MEDLINE(R)

13965392 PMID: 9664288

A portable system for closed loop control of the paralysed hand using functional electrical stimulation.

Crook S E; Chappell P H
Department of Medical Physics and Biomedical Engineering, Salisbury District Hospital, UK.

Medical engineering & physics (ENGLAND) Jan 1998, 20 (1) p70-6, ISSN 1350-4533 Journal Code: 9422753
Document type: Case Reports; Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

A portable and closed-loop system is described for the paralysed hand using transcutaneous **electrical stimulation**. It is implemented using a modest microprocessor which receives data from force **sensors** mounted in a glove on the users hand. A display shows parameter values and a menu for the user to sequentially select controller states. For the grip state, the control loop is basically proportional plus a two stage integral response (gain adaptation). Eight channels can be accommodated in the **stimulator**. The system was evaluated with the help of a tetraplegic who managed to hold everyday objects in a stable grip.

Record Date Created: 19991027
Record Date Completed: 19991027

; Biomedical Engineering; Equipment **Design** ; Evaluation Studies; Hand --physiopathology--PP; Quadriplegia--physiopathology--PP; Software; Transcutaneous Electric Nerve Stimulation--methods—MT

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File  98:General Sci Abs/Full-Text 1984-2004/Jun
File   9:Business & Industry(R) Jul/1994-2004/Jun 04
File 148:Gale Group Trade & Industry DB 1976-2004/Jun 07
File 149:TGG Health&Wellness DB(SM) 1976-2004/May W5
File 636:Gale Group Newsletter DB(TM) 1987-2004/Jun 04
File 441:ESPICOM Pharm&Med DEVICE NEWS 2004/May W5
File 369:New Scientist 1994-2004/May W5
File 370:Science 1996-1999/Jul W3
Set     Items   Description
S1       4280   NERVE? ?(2N)STIMULAT? OR NEUROSTIMUL? OR NEURO()STIMUL? OR
            NERVE? ?(1N)THERAP?
S2    2399412   CONFIGURATION? ? OR ARRAY? ? OR DESIGN? ? OR PATTERN? ? OR
            CONSTELLATION? ?
S3     177929   SENSOR OR SENSORS OR SENSING
S4    1832117   RESPONSE? ? OR RESPOND??? OR REACT????
S5    1444769   OPTIM? OR FAVOR???? OR FAVOUR????
S6    4715948   BEST OR MOST
S7    3099306   COMPUTER????
S8     201222   CONTROLLER? ?
S9     800987   PATIENT OR PATIENTS
S10      5203   ELECTRIC??(2N)STIMUL?
S11       253   ELECTROSTIMUL?
S12       121   ELECTRO()(STIMUL? OR THERAP?)
S13       271   ELECTRIC??(1W)THERAP?
S14     41426   ELECTROTHERAP? OR ELECTRODE? ?
S15    261540   STIMUL?????
S16      4503   S2(5N)S10:S15
S17       226   S3(S)S16
S18        48   S17 AND (S1 OR S9)
S19        45   RD (unique items)
S20        17   S19/2001:2004
S21        28   S19 NOT S20
S22        28   Sort S21/ALL/PD,A
S23      4299   S5()S2
S24      4225   S6()S2
S25         0   S1(S)S23:S24
S26        40   S10:S15(S)S23:S24
S27        65   S3(S)S23:S24
S28         1   S26(S)S27 [too recent]
S29       103   S26:S27 NOT (S18 OR S28)
S30        99   RD (unique items)
S31         9   S30/2001
S32        11   S30/2002
S33        11   S30/2003
S34         4   S30/2004
S35        64   S30 NOT S31:S34
S36         0   S35(S)S9
S37        64   Sort S35/ALL/PD,A

 22/8/3     (Item 3 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
03531627     SUPPLIER NUMBER: 06270973    (USE FORMAT 7 OR 9 FOR FULL TEXT)
Implantation of a cardioverter-defibrillator without thoracotomy using a
  triple electrode system.
Jan 1, 1988
WORD COUNT:   2436    LINE COUNT:  00210
```

SPECIAL FEATURES: illustration; photograph; table; chart; graph
INDUSTRY CODES/NAMES: HLTH Healthcare
DESCRIPTORS: Cardiovascular instruments, Implanted--Case studies; Defibrillators--Usage; Ventricular tachycardia--Case studies

22/8/7 (Item 7 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
05808695 SUPPLIER NUMBER: 11864472 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Recent advances in chemical sensors.
Jan 20, 1992
WORD COUNT: 3398 LINE COUNT: 00283
SPECIAL FEATURES: illustration; chart
INDUSTRY CODES/NAMES: CHEM Chemicals, Plastics and Rubber; INTL Business, International
DESCRIPTORS: Chemical detectors--Innovations; Transducers, Biomedical--Innovations; Contamination (Technology)--Equipment and supplies; Patient monitoring--Equipment and supplies

22/8/11 (Item 11 from file: 149)
DIALOG(R)File 149:(c) 2004 The Gale Group. All rts. reserv.
01604744 SUPPLIER NUMBER: 17552383 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Development of the implantable glucose sensor: what are the prospects and why is it taking so long?
1995
WORD COUNT: 5629 LINE COUNT: 00469
DESCRIPTORS: Blood sugar monitoring--Equipment and supplies; Implants, Artificial--Health aspects; Diabetes--Research

22/8/12 (Item 12 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
08743778 SUPPLIER NUMBER: 18378307 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Heart beat. (includes related article on pacemakers)
May 1, 1996
WORD COUNT: 1471 LINE COUNT: 00120
SPECIAL FEATURES: illustration; photograph; chart
COMPANY NAMES: Intermedics Inc.--Product development
INDUSTRY CODES/NAMES: INTL Business, International; ELEC Electronics
DESCRIPTORS: Pacemaker, Artificial (Heart)--Innovations; Cardiac pacemaker industry--Product development
PRODUCT/INDUSTRY NAMES: 3842431 (Pacemakers)
SIC CODES: 3845 Electromedical equipment

22/8/13 (Item 13 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
08764007 SUPPLIER NUMBER: 18409629 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Neural nets build on bio model. (International Conference on Neural Networks offers examples of real-time learning from neural technology) (Technology Information)
June 17, 1996
WORD COUNT: 1119 LINE COUNT: 00096
INDUSTRY CODES/NAMES: ELEC Electronics; ENG Engineering and Manufacturing
DESCRIPTORS: Neural networks--Innovations
PRODUCT/INDUSTRY NAMES: 3573006 (Artificial Intelligence Systems)
SIC CODES: 3571 Electronic computers

22/8/14 (Item 14 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
09307596 SUPPLIER NUMBER: 19119829 (USE FORMAT 7 OR 9 FOR FULL TEXT)
A heady proposition. (chip-implant experiments) (includes related article on biometric identification) (part 1 of 2) (Technology Information)
Feb 3, 1997
WORD COUNT: 1310 LINE COUNT: 00104
SPECIAL FEATURES: illustration; chart
INDUSTRY CODES/NAMES: ELEC Electronics; ENG Engineering and Manufacturing; BUSN Any type of business
DESCRIPTORS: Artificial intelligence--Product development; Semiconductor industry--Product development
PRODUCT/INDUSTRY NAMES: 3573006 (Artificial Intelligence Systems)
SIC CODES: 3571 Electronic computers

22/8/15 (Item 15 from file: 636)
DIALOG(R)File 636:(c) 2004 The Gale Group. All rts. reserv.
03555190 Supplier Number: 47352643 (USE FORMAT 7 FOR FULLTEXT)
MICROTOUCH LAUNCHES ENHANCED RESISTIVE TOUCHSCREENS
May 1, 1997
Word Count: 1385
PUBLISHER NAME: Vital Information Publications
COMPANY NAMES: *MicroTouch Systems Inc.
EVENT NAMES: *336 (Product introduction)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *4834250 (Interactive Television Services)
INDUSTRY NAMES: BUSN (Any type of business); ELEC (Electronics)
NAICS CODES: 51321 (Cable Networks)
TICKER SYMBOLS: MTSI

22/8/18 (Item 18 from file: 441)
DIALOG(R)File 441:(c) 2004 ESPICOM Bus.Intell. All rts. reserv.
00012150 00013508 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Cardiac Control launches temporary pacing catheter and new VDD pacemaker
23 January 1998 (19980123)
RECORD TYPE: FULLTEXT WORD COUNT: 182

22/8/25 (Item 25 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
11829274 SUPPLIER NUMBER: 59650593 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Problems Associated With Subcutaneously Implanted Glucose Sensors.(Statistical Data Included)
Feb, 2000
WORD COUNT: 2329 LINE COUNT: 00201
DESCRIPTORS: Glucose metabolism--Measurement; Type 1 diabetes--Equipment and supplies; Blood sugar--Product development
GEOGRAPHIC CODES/NAMES: 4EUNE Netherlands
PRODUCT/INDUSTRY NAMES: 8000212 (Diabetes R&D)
EVENT CODES/NAMES: 310 Science & research
NAICS CODES: 54171 Research and Development in the Physical, Engineering, and Life Sciences

22/8/28 (Item 28 from file: 636)
DIALOG(R)File 636:(c) 2004 The Gale Group. All rts. reserv.
04861389 Supplier Number: 67837067 (USE FORMAT 7 FOR FULLTEXT)
Processed EEG sector bucks downturn in monitoring

market.(electroencephalogram, American Society of Anesthesiologists meeting)(Statistical Data Included)
Dec, 2000
Word Count: 1341
PUBLISHER NAME: American Health Consultants, Inc.
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *3841710 (Anesthesia Apparatus); 8043900 (Medical Professions NEC); 9914370 (Trade Shows & Conventions)
INDUSTRY NAMES: BUSN (Any type of business); HLTH (Healthcare - Medical and Health)
SIC CODES: 3841 (Surgical and medical instruments); 8049 (Offices of health practitioners, not elsewhere classified)
NAICS CODES: 339112 (Surgical and Medical Instrument Manufacturing); 621399 (Offices of All Other Miscellaneous Health Practitioners)
ADVERTISING CODES: 85 Industry Market Data

22/3,AB,K/1 (Item 1 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.
01070054 SUPPLIER NUMBER: 03223337 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Fiber-optic sensors for biomedical applications.
Peterson, John I.; Vurek, Gerald G.
Science, v224, p123(5)
April 13, 1984
PUBLICATION FORMAT: Magazine/Journal ISSN: 0036-8075 LANGUAGE: English
RECORD TYPE: Fulltext TARGET AUDIENCE: Academic
WORD COUNT: 3520 LINE COUNT: 00347
... critically ill has grown. Continuous on-line measurements of saturation have been valuable for monitoring **patients** in respiratory failure twho are being treated by removal of extracorporeal CO.sub.2 (6). Other critically ill **patients** may be similarly monitored.
Dye dilutionmeasurement of flow. While optical fibers were first being used...optic bundle leading to a photomultiplier tube. The design is exploratory only. Chemical Sensors
Chemical **sensors** are the most recent type of fiber-optic **sensor** to appear, and were originated because of the generally disappointing performance of electrodes . The basic **design** is shown in Fig. 1. The essential requirements are a reversible indicator system (colorimetric or...

22/3,AB,K/2 (Item 2 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.
01084689 SUPPLIER NUMBER: 03702034 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Promoting functional plasticity in the damaged nervous system.
Freed, William J.; de Medinaceli, Luis; Wyatt, Richard Jed
Science, v227, p1544(9)
March 29, 1985
PUBLICATION FORMAT: Magazine/Journal ISSN: 0036-8075 LANGUAGE: English
RECORD TYPE: Fulltext TARGET AUDIENCE: Academic
WORD COUNT: 5491 LINE COUNT: 00554

22/3,AB,K/4 (Item 4 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.
01257120 SUPPLIER NUMBER: 13475030 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Current and future directions in the technology relating to bedside testing of critically ill patients . **(Bedside Diagnostic Testing)**
Misiano, Domenic R.; Meyerhoff, Mark E.; Collison, Michael E.
Chest, v97, n5, p204S(11)
May, 1990
PUBLICATION FORMAT: Magazine/Journal ISSN: 0012-3692 LANGUAGE: English
RECORD TYPE: Fulltext TARGET AUDIENCE: Professional
WORD COUNT: 7330 LINE COUNT: 00811
TEXT:
The care and monitoring of critically ill **patients** presents unique demands on hospital services.[1,2] On occasion, the outcome of a life...
... Transcutaneous **Sensors** : The historic development and clinical significance of transcutaneous measurements have been well documented.[40-45] The **sensor** employed for such measurements are essentially the same as those used in conventional blood-gas...
...style polarographic oxygen and Stow-Severinghaus style potentiometric carbon dioxide; see above) except that the **electrode designs** are modified for convenient attachment to the surface of the skin. Both individual or combination oxygen and carbon dioxide **sensors** are available.[43,46,47] Calibration is required prior to use and is performed with calibrating gases and/or a zero [O.sub.2] solution (sodium sulfite). The **sensors** are thermostated to ensure arterialization as well as stability, reliability, and fast response times.[42...
...cause burns and other skin irritations. As with other polarographic devices the [tcPO.sub.2] **sensor** has been shown to be affected, at least to some degree, by certain drugs and...
...between transcutaneous measurements of oxygen and carbon dioxide and the conventional measurements particularly with adult **patients** . Indeed, [tcPO.sub.2] often follows [PaO.sub.2] in stable neonates, but not in...is not, however, considered a serious limitation in most clinical situations. Other factors such as **patient** movement, hypothermia, vasopressor drugs, peripheral vascular disease, stray ambient lighting, and elevated bilirubin levels have...
DESCRIPTORS: **Patient** monitoring...

22/3,AB,K/5 (Item 5 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)

01250377 SUPPLIER NUMBER: 09294590 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Controlling stability of a complex movement system.
Keshner, Emily A.
Physical Therapy, v70, n12, p844(11)
Dec, 1990
PUBLICATION FORMAT: Magazine/Journal ISSN: 0031-9023 LANGUAGE: English
RECORD TYPE: Fulltext; Abstract TARGET AUDIENCE: Professional
WORD COUNT: 6193 LINE COUNT: 00650
ABSTRACT: The task of the sensory systems and the motor (muscle) systems is to transform information perceived by the senses into appropriate movements. This is relatively easy to study when there is a single sensory system involved and limited junctions between the sensory nerve and the output to a motor system. But these relationships become more difficult to analyze when each of these factors has multiple participating components. The musculoskeletal system of vertebrates is indeed more complex, with the ability to move in more than one dimension at a time and with more muscles surrounding joints than are needed to produce functional movements. For example, the head-neck motor system has 23 different muscles for a very

limited repertoire of motion. Similarly, there are multiple sensory inputs, from proprioceptive (posture and movement sensation) and vestibulocollic (inner ear **sensors** of position and equilibrium) reflexes and from muscle length **sensors** . This leads to the possibility that input from different sensory systems might trigger differ muscle combinations, but ultimately lead to the same movement behavior. Using this scheme, the article analyzes the head-neck movement system and the whole-body system. Models of complex movement behavior are discussed. These lead to implications for functional assessment of **patients** with disturbed movement patterns. Both predictable and novel environmental circumstances should be presented to the **patient** , and the **patient** 's response should be measured. **Patients** need to form multiple response **patterns** to **stimuli** ; single responses are not adaptive or flexible strategies for dealing with complex environments. Growth of knowledge about complex movement behavior should continue to aid in developing therapeutic approaches used by physical therapists. (Consumer Summary produced by Reliance Medical Information, Inc.)
AUTHOR ABSTRACT: Human movement system have frequently been treated as one-dimensional, single-axis, rigid bodies in order to simplify the gathering, analysis, and interpretation of data. The problem with this approach is that the results of such assumptions often lead to conclusions about the production and control of movement that do not relate to the control demands placed on the central nervous system. In order to truly understand how the central nervous system plans and produces movements to match environmental demands, we must take into account the many variations available within the body. The purpose of this article is to examine two movement systems that have the potential to act in multiple spatial dimensions with variable muscle action patterns when performing a stabilizing task. Methods of analyzing how the systems operate under differing task constraints and results of the experiments will be presented. Hypothetical models that have been proposed to explain how complex movement systems operate will also be discussed. [Keshner EA. Controlling stability of a complex movement system. Phys Ther. 1990;70:844-854.]
... dominant at a different frequency range. This finding does not mean that we can train **patients** to move within a frequency range over which their central nervous system (CNS) is capable...the EMG record of the ankle muscles (SOLs and TAs) and ankle torque recordings of **patients** with bilateral labyrinthine deficit [13] were found to be significantly diminished when compared with those...
...which appeared at about 80 milliseconds in healthy subjects, were essentially absent in the patient population , indicating a vestibulospinal origin to this response. Amplitude of EMG recordings correlated with extent of...
...vestibulospinal signals. Electromyographic activity in the neck muscles was not obviously altered in these patients, suggesting local control by segmental stretch reflexes.
In another study, [21] latencies and areas under ankle...
...40 years of age), healthy elderly adults (50-80 years of age), and parkinsonian patients (50 -80 years of age). A stepwise discriminant analysis clearly distinguished between the three groups on...
...are poorly compensated for by enhanced response magnitudes. Balance problems in age-matched parkinsonian patients is a function of both age-and disease-related variables.
Examination of similar parameters in other...
...help to identify mechanisms that underlie diminished stability and has produced thef ollowing results. Patients with peripheral vestibular

deficits tend to restabilize with greater motion at the ankle than at the
...
...free head movement occurs. [22] Medium-latency responses at the ankle were absent in patients with spinal lesions. [23] A test of sway-stabilizing responses in patients with atrophy of the anterior lobe of the cerebellum revealed that response latencies were within normal...
...sensory processing? Second, are the kinematics of the movement modified by changes in the patient' **s** ability to process information as well as by the availability of sensory inputs into the...available at each individual body segment does not assist us in determining how that patient will perform when presented with a multisegmental movement such as walking. In order to more functionally assess the ability of a patient to perform normal motor patterns, we must take into account and control as many of th
...
...result of fixed programs, but is flexibly modified for each repetition. Second, measure the patient' **s** response to both novel and predictable events. The ability to predict and actively plan for...
...a heavy book. Finally, remember that overlearning can inhibit adaptation. Do not make the patient so comfortable with a single response pattern that he or she will attempt to use that...
...pattern of movement that will resolve all of the postural problems presented to our patients. 1The key to success, however, is to develop adaptable and flexible strategies that will meet the...
..Pfaltz CR. Postural coactivation and adaptation in the sway stabilizing responses of normals and patients with bilateral peripheral vestibular deficit. Exp Brain Res. 1987;69:66-72.
[14] Grossman GE, Leigh...
...EA, Honegger F, Pfaltz CR. Organization of leg-trunk-head coordination in normals and patients with peripheral vestibular deficits. In: Pompeiano O, Allum JHJ, eds. Vestibulospinal Contol of Posture and Movement
...
...HC, Dichgans J, Bacher M, Guschlbauer B. Characteristic alterations of long-loop "reflexes" in patients with Friedreich's disease and late atrophy of the cerebellar anterior lobe. J Neurol Neurosurg Psychiatry...

22/3,AB,K/6 (Item 6 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2004 The Gale Group. All rts. reserv.
01620603 Supplier Number: 42487839
COMPANY TO WATCH: TEKNEKRON SENSOR DEVELOPMENT CORP.: Microsensors
Sensor Technology, v7, n11, pN/A
Nov, 1991
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 484

22/3,AB,K/8 (Item 8 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2004 The Gale Group. All rts. reserv.
01888386 Supplier Number: 43272190
ESTC Creates Microsensors With Macro Opportunities
Sensor Business Digest, v1, n12, pN/A
Sept, 1992
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 1803

... throttle position control.
FIGURE 1 shows the design of a flexible multi-element capacitive force **sensor** under development for measuring the human hand's grasp of force. Originally targeted for use in an electrical stimulation system for high level spinal cord injury **patients** , the tactile force **sensor** is attracting interest for controlling industrial lawnmowers. The **sensor** consists of a 64-element capacitive **sensing array** , arranged as 8 row **electrodes** and 8 column electrodes. The intersections of the electrodes form capacitive **sensing** elements. As the compliant dielectric is deformed by normal forces applied to the **sensor** 's surface, the capacitance of each element changes...

22/3,AB,K/9 (Item 9 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2004 The Gale Group. All rts. reserv.
02259115 Supplier Number: 44328181
SENSOR MARKETS AND TECHNOLOGIES UPDATE: AMP SET TO GENERATE A CHARGE IN THE MARKETPLACE
Sensor Business Digest, v3, n>4, pN/A
Jan, 1994
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 3112
... sensors for cable tampering, door edge safety monitoring, floor mats, touch pads and panels, and **patient** mattress monitors.
Chatigny perceives significant opportunities to exist for AMP ROADTRAX (TM) traffic sensors, driven...prostate surgery, and provide less discomfort and bleeding than current methods.
The AMP ultrasonic level **sensor** , which benefits tank level measurement, uses multiple transmitters and a single, common receiver. The **sensor** 's transmitter is an unmetallized strip of piezo film attached to a printed circuit board that contains **electrode patterns** , conductors, and interconnections, with circuitry on the board's opposite side. The **electrode patterns** are capacitively coupled to the piezo film layer, thereby becoming multiple transmitter elements. A second...

22/3,AB,K/10 (Item 10 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text
(c) 2004 The HW Wilson Co. All rts. reserv.
03002440 H.W. WILSON RECORD NUMBER: BGSA95002440
Artificial sensations.
Ridley, Kimberly
Technology Review v. 97 (Oct. 1994) p. 11-13
SPECIAL FEATURES: il ISSN: 0040-1692
LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 1132
ABSTRACT: A team of scientists is trying to develop the first neural prosthesis whose parts can work reliably and safely in humans for decades. Project head Ronald Riso, a senior research associate professor with the rehabilitation engineering center at Case Western Reserve University; David Edell, a principal research scientist in the department of health sciences and technology at MIT; and surgeons Michael Keith of Case Western and Mark Koris of the West Roxbury, Massachusetts, Veterans Administration Center are relying on knowledge of the nervous system to design a prosthesis that will stimulate sensations and can attach through a small implant to the

arm's median nerve. If the researchers can prove that the interface operates safely and reliably in rabbits, they plan to implant it in humans.
TEXT:
... a severed nerve, the wire ends inside the cup are supposed to slip among the **patient** 's axons. From the cup's other end, the wires attach outside the skin to...
...electric impulses necessary to create various degrees of pressure.
The next step will be to **design** a neural interface containing more **electrodes** to mimic additional sensations such as texture and temperature. The researchers plan to accomplish this...
...term vision of a prosthesis for the hand and lower arm involves "a mosaic of **sensors** " on the fingertips. The resulting sensory signals will be...

22/3,AB,K/16 (Item 16 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.
01698802 SUPPLIER NUMBER: 19468875 (USE FORMAT 7 OR 9 FOR FULL TEXT)
FES: a stimulating system. (functional electrical stimulation)
Teeter, Jeanne O'Malley; Brown-Triolo, Denise L.
Paraplegia News, v51, n6, p44(6)
June, 1997
PUBLICATION FORMAT: Magazine/Journal ISSN: 0031-1766 LANGUAGE: English
RECORD TYPE: Fulltext TARGET AUDIENCE: Academic; Professional
WORD COUNT: 1568 LINE COUNT: 00140
... abdomens.
Several vendors now offer FES bicycle equipment with new features such as more comfortable **stimulation** . Phrenic **nerve** pacers and spinal-cord (dorsal column) **stimulators** are neuroprostheses that have been commercially available for...s body) may provide an effective way to control FES devices. Researchers are testing implanted **sensors** that measure joint position and will allow, for the first time, sophisticated computer-control of limb movement outside the laboratory. Scientists are designing new nerve **electrodes** and **arrays** (**electrodes** that have multiple contacts arranged in a grid) to selectively record from and activate nerves...

22/3,AB,K/19 (Item 19 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2004 The Gale Group. All rts. reserv.
04036583 Supplier Number: 53381850
Biosensors and Diagnostics: It Ain't Over Till It's Over.
Genesis Report-Dx, v8, n1, p2(1)
July, 1998
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 5503
... does not consume oxygen and does not have any products that can leach into the **patient** .
Other research on continuous glucose measuring devices was presented by researchers from:
* The University of...entirely eliminate the need for a blood glucose measurement. "Skin impedance is very variable; therefore **patients** must recalibrate daily with a finger stick glucose measurement," said Tierney.
Insulin-infusion pump manufacturer...
...the company's representative at the conference. The sensor is a

subcutaneous tube that the **patient** inserts and changes every 3 days. Interstitial fluid is tested for glucose every 5 minutes, and glucose levels are stored in a small pager-sized monitor worn by the **patient** .

MiniMed has mapped out a step-by-step commercialization plan to build physician confidence in...
...Holter-style monitor system, such as the type used for continuous electrocardiograms in heart attack **patients** . The system will be worn by **patients** for 3 days, and glucose data will be stored in the monitor. Mastrototaro said the data will not be read by the **patient** , but will be downloaded to a computer in the physician's office so the physician...
...chain reaction (PCR).

* Provides detection by PNA probes.

"We are also working on a renewable **sensor design** whereby **electrode** polishing provides a fresh **electrode** surface continuously and without any carryover memory," he stated.

Scientists...coagulation, and cellular tests will be required.

* Time-sensitive testing will move closer to the **patient** and, therefore, portable, user-friendly instruments will take the lead.

With these criteria in mind...of those problems, including the use of:

* Flow injection for rapid and parallel test capabilities
* **Array** -based **sensing electrodes**
* Screen printing.

However, a significant amount of biosensor research has also been devoted to esoteric...4,000 data points and has a hypoglycemic alarm. The device was tested on 17 **patients** with type I or type II diabetes and serum glucose levels ranging from less than...
...than 400 mg/dl. The sensor's readings correlated with the level of glucose in **patients** ' blood as measured by a standard glucose monitor. The mean absolute error of the device...
...were:

* Results vary with skin permeability, so the accuracy of readings will vary from different **patients** and from different sites of the skin in the same **patient** .

* Perspiration, which is not uncommon in people with diabetes, can interfere with the reading, and...
...device for up to 20 days at four different centers. The probe was inserted into **patients** by professionals or by the **patients** themselves, who wore the system during their normal daily activities. The readings were the same whether the sensor was inserted by a **patient** or by a health-care professional - an indication that the CGMS would be effective in...

22/3,AB,K/22 (Item 22 from file: 370)
DIALOG(R)File 370:Science

00509704
NEUROSCIENCE: Bypassing Nervous System Damage With Electronics
Service, Robert F.
Science Vol. 284 No. 5414 pp. 579
Publication Date: 04/23/1999 (990423) Publication Year: 1999
Document Type: Journal ISSN: 0036-8075
Language: English
Word Count: 691
...Text: individual neurons. Heading the list of successes are cochlear implants, which use implanted electrodes to **stimulate** auditory **nerves** and provide rudimentary hearing to the deaf and have already been received

by over 20...
...he adds, the ultimate goal of making advanced neural prostheses that can fully restore a **patient** 's motion or vision is 'a bit of a long shot.' The obvious problem is...
...example, 1 million nerves carry stimuli from light receptors in the retina to the brain. **Stimulating** all those **nerves** independently remains, for now, an impossibility.
Surprisingly, however, much has been accomplished with relatively crude...
...Maryland, for example, Mark Humayun and his team have temporarily implanted a 3-millimeter-wide **array** of 25 **electrodes** atop the retina of one eye in each of two elderly **patients** with retinitis pigmentosa. (This hereditary condition slowly degrades the eye's light **sensors** , known as rods and cones, eventually leaving **patients** totally blind.) An external unit sends electrical signals to the electrodes via wires passing through...
...issue of Vision Research, Humayun and his colleagues describe how the retinal stimulation allowed both **patients** to perceive complex shapes, such as squares and letters. The team is already working to...
...can restore hand gripping movement to quadriplegics. In a recently commercialized version of the device, **patients** control their hand movements by thrusting their opposite shoulder forward and backward, activating implanted sensors...
...steady progress with a variety of other neural prostheses, such as one that helps paralyzed **patients** stand and even walk, as well as an advanced version of a bladder-control device...

22/3,AB,K/23 (Item 23 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)
(c) 2004 The Gale Group. All rts. reserv.
04173911 Supplier Number: 54651313
IRVINE ENLIVENS BIOMEDICAL SENSING.
Sensor Business Digest, v8, n6, pNA
May, 1999
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 1350
... Sensors to develop the wearable sensor technology. Altec spearheaded the design of biomedical **electrodes** and **electrode** interfaces, as well as data processing software for such sensors. The company's proprietary technology...

22/3,AB,K/24 (Item 24 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2004 The Gale Group. All rts. reserv.
11896437 SUPPLIER NUMBER: 60899860 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Digital Vision for the Blind: Real Progress.(Brief Article)
Advanced Imaging, 15, 2, 8
Feb, 2000
DOCUMENT TYPE: Brief Article ISSN: 1042-0711 LANGUAGE: English
RECORD TYPE: Fulltext
WORD COUNT: 206 LINE COUNT: 00018
TEXT:
...camera worn in sun-glasses, as seen here, and an ultrasound distance sensor, with an **electrode** **array** implanted in the occipital lobe, behind the right ear, to bring actual visual information to...
... the user gets a working picture pattern, if a limited one, of

approaching objects. The **patient** is able to recognize 6" letters at five feet, to count fingers from the visual...

22/3,AB,K/26 (Item 26 from file: 9)
DIALOG(R)File 9:Business & Industry(R)

2792739 Supplier Number: 02792739
World's first visual prosthesis gives gift of sight
(Dobelle Institute develops an artificial vision system enabling blind individuals to do various things including utilizing the Internet)
Design News, v 55, n 9, p 22
May 01, 2000
DOCUMENT TYPE: Journal ISSN: 0011-9407 (United States)
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 266

37/8/6 (Item 6 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
03941384 SUPPLIER NUMBER: 06969250 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Cardiomyoplasty adds muscle to efforts to alleviate end-stage heart failure.
Jan 27, 1989
WORD COUNT: 1414 LINE COUNT: 00115
SPECIAL FEATURES: illustration; chart
INDUSTRY CODES/NAMES: HLTH Healthcare
DESCRIPTORS: Heart failure--Surgery; Cardiomyoplasty--Research; Striated muscle--Transplantation

37/8/11 (Item 11 from file: 149)
DIALOG(R)File 149:(c) 2004 The Gale Group. All rts. reserv.
01256484 SUPPLIER NUMBER: 08982998 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Electromagnetic fields: the biological evidence.
1990
WORD COUNT: 3172 LINE COUNT: 00258
SPECIAL FEATURES: illustration; photograph
DESCRIPTORS: Electromagnetic fields--Health aspects; Cancer--Causes of

37/8/20 (Item 20 from file: 148)
DIALOG(R)File 148:(c)2004 The Gale Group. All rts. reserv.
05539687 SUPPLIER NUMBER: 11626761 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Novacor's VAD: how to mend a broken heart. (ventricular assist device)
Nov, 1991
WORD COUNT: 1864 LINE COUNT: 00149
SPECIAL FEATURES: illustration; photograph
COMPANY NAMES: Novacor Inc.--Product development
INDUSTRY CODES/NAMES: ENG Engineering and Manufacturing
DESCRIPTORS: Artificial Hearts: Prototypes, Policies, and Patients (Report)--Analysis; United States. National Heart, Lung and Blood Institute--Science and technology policy; Institute of Medicine--Reports; Heart, Artificial--Research
SIC CODES: 3672 Printed circuit boards; 9611 Admin. of general economic programs; 8731 Commercial physical research; 3841 Surgical and medical instruments

37/8/57 (Item 57 from file: 149)
DIALOG(R)File 149:(c) 2004 The Gale Group. All rts. reserv.

01934580 SUPPLIER NUMBER: 65130317 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Mapping the Vertebral Endplate: Surprising Results.
2000
WORD COUNT: 718 LINE COUNT: 00060
DESCRIPTORS: Spinal fusion--Complications; Vertebrae--Physiological aspects

37/3,AB,K/1 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
(c)2004 The Gale Group. All rts. reserv.
03522721 SUPPLIER NUMBER: 06761863 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Sensors and transducers. (Electrical-Electronics Reference Issue)
Machine Design, v60, n11, p149(17)
May 19, 1988
ISSN: 0024-9114 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT
WORD COUNT: 6823 LINE COUNT: 00554
... The MP series from Micro Switch has interchangeable **sensor** heads, bases, and logic cards to **optimize design** .

37/3,AB,K/19 (Item 19 from file: 149)
DIALOG(R)File 149:TGG Health&Wellness DB(SM)
(c) 2004 The Gale Group. All rts. reserv.
01311998 SUPPLIER NUMBER: 11360667 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Autoassociation and novelty detection by neuromechanics.
Daunicht, Wolfgang J.
Science, v253, n5025, p1289(3)
Sept 13, 1991
PUBLICATION FORMAT: Magazine/Journal ISSN: 0036-8075 LANGUAGE: English
RECORD TYPE: Fulltext TARGET AUDIENCE: Academic
WORD COUNT: 2140 LINE COUNT: 00200

37/3,AB,K/38 (Item 38 from file: 370)
DIALOG(R)File 370:Science
(c) 1999 AAAS. All rts. reserv.
00501045
Synaptic Depression and Cortical Gain Control
Abbott, L. F.; Varela, J. A.; Sen, Kamal; Nelson, S. B.
L. F. Abbott and Kamal Sen, Volen Center, Brandeis University, Waltham, MA 02254, USA. ; J. A. Varela and S. B. Nelson, Department of Biology, Brandeis University, Waltham, MA 02254, USA.
Science Vol. 275 5297 pp. 220
Publication Date: 1-10-1997 (970110) Publication Year: 1997
Document Type: Journal ISSN: 0036-8075
Language: English
Section Heading: Reports
Word Count: 2840
Abstract: Cortical neurons receive synaptic inputs from thousands of afferents that fire action potentials at rates ranging from less than 1 hertz to more than 200 hertz. Both the number of afferents and their large dynamic range can mask changes in the spatial and temporal pattern of synaptic activity, limiting the ability of a cortical neuron to respond to its inputs. Modeling work based on experimental measurements indicates that short-term depression of intracortical synapses provides a dynamic gain-control mechanism that allows equal percentage rate changes on rapidly and slowly firing afferents to produce equal postsynaptic responses. Unlike inhibitory and adaptive mechanisms that reduce responsiveness to all inputs, synaptic depression is input-specific, leading to a dramatic

increase in the sensitivity of a neuron to subtle changes in the firing patterns of its afferents.
...Text: that the perceived magnitude of a change (Delta) I in the intensity I of a **stimulus** is proportional to (Delta) I/I (B9) . Synaptic depression realizes a similar Weber-Fechner relation...
...transient response amplitude was indeed proportional to the fractional change (Delta) r/r of the **stimulation** rate; the amplitude for (Delta) r/r = 1 was twice as big as that for...change in the product of the amplitude of the field potential times the rate of **stimulation** . (C) Results and fit of the model for constant percentage rate changes ((Delta) r/r...

37/3,AB,K/47 (Item 47 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

03792131 H.W. WILSON RECORD NUMBER: BGSA98042131
The reliability of monopolar and bipolar fine-wire electromyographic measurement of muscle fatigue.
Davis, Brian A
Krivickas, Lisa S; Maniar, Rakesh
Medicine and Science in Sports and Exercise (Med Sci Sports Exercise) v. 30 no8 (Aug. 1998) p. 1328-35
SPECIAL FEATURES: bibl il ISSN: 0195-9131
LANGUAGE: English
COUNTRY OF PUBLICATION: United States
WORD COUNT: 4884
ABSTRACT: A study examined the reliability and sensitivity of **electrode** placement for assessing muscle fatigue. Participants were 30 healthy male subjects who performed four, 30-second isometric fatiguing contractions divided between two testing sessions with three intramuscular **electrodes** in and two surface **electrodes** on their biceps brachii. The results revealed that the **configuration** with distal bipolar intramuscular **electrodes** placed 1 cm apart was the most reliable intramuscular technique and that bipolar fine-wire **configurations** showed a trend toward better reliability than monopolar fine-wire **configurations**.

37/7/34 (Item 34 from file: 636)
DIALOG(R)File 636:Gale Group Newsletter DB(TM)

02619675 Supplier Number: 45301928 (THIS IS THE FULLTEXT)
Virginia Tech Reports Stable Fiber Optic Sensor for Electric Current Measurement
Optics Report, v1, n8, pN/A
Feb, 1995
TEXT:
Opportunities are now available for the development of a fiber- optic electric current sensor (see 11/94 OR) offering not only the usual fiber -based advantages of immunity to voltage and EM noise (making it suited to high-voltage environments), but also insensitivity to temperature and vibrational effects. According to Richard Claus, Director of Virgina Tech's Fiber & Electro-Optics Research Center (Blacksburg, VA, USA), Faraday-effect sensors appear to be the only type suited to industrial environments, however these types of sensors are sensitive to vibration and temperature effects due to signal drifts caused by residual birefringence in the fibers. This problem was addressed by utilizing a low-birefringence fiber **sensing** coil in conjunction with an intensity-based

reciprocity-insensitive compensation scheme, covered by Chinese Patent #ZL90107793.3, and claimed able to reduce (through optimal design) the effects of reciprocal birefringence by a factor of more than 50. The technique also has the advantage of both low cost and high performance compared to other compensation techniques. Polarization fibers are used as the polarizers, 3 m of which provide a 10 sup -4 extinction ratio, and the low-bi fibers made via a spun fiber plus annealing technique. Concerning joint-development opportunities, Dr. Claus notes the most significant needs for the project right now are funding, a field test facility, and marketing resources - interested parties inquire. Contact: Richard Claus, Director, Fiber & E-O Research Center, EE Dept, 648 Whittemore Hall, Virginia Tech, Blacksburg, VA 24061- 0111, USA. Tel: 703-231-7203, fax: 703-231-4561, email: fiberop@VTVM1.cc.vt.edu.

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File 350:Derwent WPIX 1963-2004/UD,UM &UP=200435
File 347:JAPIO Nov 1976-2004/Jan(Updated 040506)
File 371:French Patents 1961-2002/BOPI 200209
Set     Items   Description
S1       1578   NERVE? ?(2N)STIMULAT? OR NEUROSTIMUL? OR NEURO()STIMUL? OR
            NERVE? ?(1N)THERAP?
S2    1294382   CONFIGURATION? ? OR ARRAY? ? OR DESIGN? ? OR PATTERN? ? OR
            CONSTELLATION? ?
S3     863618   SENSOR OR SENSORS OR SENSING
S4    1642437   RESPONSE? ? OR RESPOND??? OR REACT????
S5     357648   OPTIM? OR FAVOR???? OR FAVOUR????
S6     198057   BEST OR MOST
S7     719219   COMPUTER????
S8     701856   CONTROLLER? ?
S9     139338   PATIENT OR PATIENTS
S10      3414   ELECTRIC??(2N)STIMUL?
S11       326   ELECTROSTIMUL?
S12       473   ELECTRO()(STIMUL? OR THERAP?)
S13       307   ELECTRIC??(1W)THERAP?
S14    909560   ELECTROTHERAP? OR ELECTRODE? ?
S15     75284   STIMUL?????
S16     24931   IC=A61N-001
S17      5719   S2 AND S3 AND S10:S15
S18       201   S17 AND (S1 OR S9)
S19        89   S16 AND S18
S20        16   S19 AND S5:S6
S21        30   S5:S6(S)S1
S22         2   S2 AND S3 AND S21
S23         1   S22 NOT S20
S24        11   S1 AND S17
S25         7   S24 NOT (S20 OR S22)
S26     30192   S5:S6(S)S2
S27       116   S17 AND S26
S28        15   S16 AND S27
S29         8   S28 NOT (S20 OR S22 OR S24)
S30        12   S1 AND S2 AND S3
S31         1   S30 NOT (S20 OR S22 OR S24 OR S28)
S32    107320   THERAP?
S33        86   S17 AND S32
S34        37   S16 AND S33
S35        29   S34 NOT (S20 OR S22 OR S24 OR S28 OR S30)
S36       163   S1(S)S32
S37        97   S36 AND S16
S38      5606   IC=(A61N-001/36 OR A61N-001/18)
S39         0   S 36 AND S38
S40        50   S36 AND S38
S41        48   S40 NOT (S20 OR S22 OR S24 OR S28 OR S30 OR S34)
S42        47   S10:S15 AND S41
S43         2   S2 AND S42
S44         1   PN='US 20040019370'
S45         1   PN='WO 200326736'
S46         1   S42 AND S44:S45
S47         1   S46 NOT S43
S48         2   S44:S45
S49         2   S1 AND S48
S50         1   S2 AND S48
```

S51 0 S3 AND S48
S52 1 S4 AND S48
S53 0 S5 AND S48
S54 0 S6 AND S48
S55 0 S7 AND S48
S56 2 S10:S15 AND S48
S57 1 S10 AND S48
S58 0 S11 AND S48
S59 0 S12 AND S48
S60 1 S13 AND S48
S61 2 S14 AND S48
S62 2 S15 AND S48
S63 618 S1 AND S14 AND S15
S64 247 S38 AND S63
S65 3 S64 AND S2 AND S4 AND (S10 OR S13)

20/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015972419
WPI Acc No: 2004-130260/200413
Unitary subcutaneous implantable cardioverter-defibrillator for countering arrhythmic heart conditions, includes housing containing electrical energy source, capacitor and circuitry, and cardioversion/defibrillation electrodes

20/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015838496
WPI Acc No: 2003-900700/200382
Implantable electrical lead for cardiac pacemakers, has microprocessor to determine optimal **threshold for selecting** electrodes **from several** electrodes

20/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015116712
WPI Acc No: 2003-177235/200318
Multi-site cardiac stimulation **device for heart pacemaking, includes flexibly programmable** electrode stimulation configurations **capable of precisely controlling the** stimulation **sequence between multiple sites**

20/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013796598
WPI Acc No: 2001-280809/200129
Electrical lead for sensing **electrical activity within the body of** patient **and for applying electrical energization to selected body tissue, comprises lead body having conductor(s), and** electrode **having conductive pad**

20/26,TI/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013328235
WPI Acc No: 2000-500174/200045

Multi-pole heart stimulator; **has number of** electrodes **to be implanted around heart where each** electrode **is separately provided with** stimulation pattern

20/26,TI/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009966564
WPI Acc No: 1994-234277/199428
Neural response measurement system using electrical stimulation **and telemetry appts. - uses implanted intra-cochlear and extra-cochlear** electrodes **for** stimulus **and measurement, and cascaded gain stages for nulling amplifier prior to detecting potential**

20/26,TI/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009581213
WPI Acc No: 1993-274759/199335
Implantable defibrillation system with optimum **energy steering - uses** electrode **arrangement to provide at least two pathways for electrical discharge, and steering system to distribute energy between** electrodes

20/26,TI/9 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009570657
WPI Acc No: 1993-264205/199333
Obstructive sleep apnea screening appts. for pre-operative and intra-operative screening - processes signals from sensors **adapted to monitor different physiological parameters and generates muscle** stimulating **signal in response to detection of apnea event**

20/26,TI/10 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009505314
WPI Acc No: 1993-198850/199325
Defibrillation pulse generator with small value capacitor - uses chronaxie to define figure of merit for physiologically effective current for characterising and evaluating defibrillation pulse, to determine optimum **value for capacitance, tilt and pulse duration**

20/26,TI/11 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009324466
WPI Acc No: 1993-017930/199302
Appts. for suppression of vagus nerve stimulation **- has selective filtering in known voice frequency band to improve discrimination of signal derived from speech-generated vibrations**

20/26,TI/12 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009238600
WPI Acc No: 1992-366021/199244

Implantable device for detecting far-field cardiac signals - uses pairs of sensing electrodes **, and selects** electrode **pair signal providing** optimum **indication of electrogram characteristics**

20/26,TI/13 (Item 13 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
008988722
WPI Acc No: 1992-115990/199215
Capture-verification system for heart pacemaker - uses capture sense amplifier or refractory-period operation of sense and pale amplifiers with indifferent electrode

20/26,TI/14 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
008668237
WPI Acc No: 1991-172258/199124
Activity-dependent heart pacemaker - has piezoelectric transducer and signal processor switching activity sensor **system on or off according to** patient **'s day or night rhythm**

20/26,TI/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
004462293
WPI Acc No: 1985-289171/198546
Pacemaker system with automatic event-programmed switching - has programmable devices for connecting pacemaker output to selected combination of lead electrodes

20/34/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015029356 **Image available**
WPI Acc No: 2003-089873/200308
Stimulation pulse proximity sensing /feedback regulation method for muscle stimulation system, involves performing feedback regulation of stimulation pulses based on proximity sensor output
Patent Assignee: NAC TECHNOLOGIES INC (NACT-N)
Inventor: BOVEJA B R; SARWAL A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6473652	B1	20021029	US 2000532931	A	20000322	200308	B

Priority Applications (No Type Date): US 2000532931 A 20000322
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6473652	B1		17	A61N-001/08	

Abstract (Basic): US 6473652 B1
NOVELTY - A proximity **sensor** (48) detects the position of a primary coil (50) of an external **stimulator** and secondary coil (52) of implanted **stimulus** receiver. A controller (40) performs feedback regulation of **stimulation** pulses based on **sensor** output.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) **Stimulation** pulse proximity **sensing** /feedback regulation system; and
(2) **Stimulation** pulse regulation method.
USE - For proximity **sensing** and feedback regulation of **stimulation** pulses of inductively coupled **nerve** or muscle **stimulation** system used for therapy for clinical states such as partial complex epilepsy, generalized epilepsy, urinary urge incontinence, Alzheimer's disease, inappropriate sinus tachycardia, neurogenic pain, depression, refractory angina, etc.
ADVANTAGE - By the **optimal** positioning of the external coil, the continuous feedback regulation of the signal **pattern** output to the body portion to be **stimulated** , is ensured.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the proximity **sensing** /feedback regulation system.
Controller (40)
Proximity **sensor** (48)
Primary coil (50)
Secondary coil (52)
pp; 17 DwgNo 4/10
Derwent Class: P34; S03; S05; W02
International Patent Class (Main): **A61N-001/08**

20/7/16 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
(c) 2004 JPO & JAPIO. All rts. reserv.
07686968 **Image available**
VESTIBULAR STIMULATION SYSTEM AND METHOD
PUB. NO.: 2003-180847 [JP 2003180847 A]
PUBLISHED: July 02, 2003 (20030702)
INVENTOR(s): LATTNER STEFANIE
MECHLENBURG DOUGLAS M
APPLICANT(s): RESPIRONICS INC
APPL. NO.: 2002-320958 [JP 2002320958]
FILED: November 05, 2002 (20021105)
PRIORITY: 01 003809 [US 20013809], US (United States of America), November 02, 2001 (20011102)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an apparatus and method in which the portions of the labyrinth associated with the labyrinthine sense and/or the nerves associated therewith are **stimulated** to perform at least one of the following functions: augment or control a **patient** 's respiratory function, open the **patient** 's airway, induce sleep, and/or counteract vertigo.
SOLUTION: The vestibular **stimulating** system of the present invention includes (1) a **stimulation** element 38 that performs the actual **stimulation** of the tissue, (2) a **sensor** 34 to detect the physical condition of the **patient** , and (3) a power/control unit 60 that receives the signals provided by the **sensor** and causes **stimulation** energy to be provided to the **stimulation** element at an appropriate timing, level, **pattern** , and/or frequency to achieve the desired function. However, the present invention also contemplates eliminating the **sensor** in **favor** of applying a predetermined **pattern** of **stimulation** to the **patient** .
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23/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.

014285384
WPI Acc No: 2002-106085/200214
Biodegradable optical fiber for light delivery device used in medical field, agriculture, comprises core and cladding composed of biodegradable material and cladding has refractive index less than that of core

25/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014105353
WPI Acc No: 2001-589567/200166
Implantable neurostimulator **for treating patients suffering from heart failure, uses a programmable pulse frequency adjuster and activity** sensor **to control a patients heart rate**

25/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010927596
WPI Acc No: 1996-424547/199642
Body-implantable electrode **and** sensor **lead appts. - comprising insulated, non-coiled polymer conductors, means for coupling their proximal ends to pacemaker and distal** electrode .

25/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010864898
WPI Acc No: 1996-361849/199636
Treatment method for patient's suffering from motility disorders of e.g gastrointestinal system - selectively stimulating **patient's vagus nerve to modulate electrical activity of nerve and cause selective release or suppression of neuro-transmitters**

25/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010421266
WPI Acc No: 1995-322582/199542
Sole massage device to expand capillary and stimulate **peripheral** nerve **- uses impact rods reciprocated by cam follower which is activated by electric motor switched on by foot impact**

25/34/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014893396 **Image available**
WPI Acc No: 2002-714102/200277
Functional electrical therapy **system for recovery of upper limb function in humans uses** electrical stimulation **of efferent** nerves **to augment and generate missing functions**
Patent Assignee: NEURODAN AS (NEUR-N)
Inventor: POPOVIC D P; SINKJAER T
Number of Countries: 101 Number of Patents: 003
Patent Family:
Patent No Kind Date Applicat No Kind Date Week

WO 200285452 A1 20021031 WO 2002EP4466 A 20020423 200277 B
EP 1381425 A1 20040121 EP 2002745255 A 20020423 200410
WO 2002EP4466 A 20020423
AU 2002316869 A1 20021105 AU 2002316869 A 20020423 200433
Priority Applications (No Type Date): DK 2001650 A 20010424
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 200285452 A1 E 46 A61N-001/36
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
EP 1381425 A1 E A61N-001/36 Based on patent WO 200285452
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
AU 2002316869 A1 A61N-001/36 Based on patent WO 200285452
Abstract (Basic): WO 200285452 A1

NOVELTY - A controller can regulate up to 8 bipolar mutually independent **stimulation** channels and the controller outputs are logical high or low signals while the inter-pulse interval is the time between two subsequent transitions from low to high. Two programmable gate **array** chips generate pulses with defined duration according to information from the controller, receiving information from analog **sensors** and **electrical stimulation** is performed to generate missing components of functional movement in synchronism with biological efferent activity.

DETAILED DESCRIPTION - AN INDEPENDENT CLAIM is included for a method of integrated **electrical stimulation** of upper limb exercise.

USE - **Electrical stimulation** of upper limbs in humans.

ADVANTAGE - Mimics synchronism of muscle activity.

DESCRIPTION OF DRAWING(S) - The drawing shows a central **stimulation** controller.

pp; 46 DwgNo 2/4

Derwent Class: P34; S05
International Patent Class (Main): A61N-001/36

25/34/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009488740 **Image available**
WPI Acc No: 1993-182275/199322
Manually and automatically activated implantable neuro-stimulator **for delivering waveform to selected e.g vagus nerve - uses pressure or vibration** sensor **tuned to recognise patient initiated signal for activating generator to on-state to produce predetermined modulation of nerves electrical activity**
Patent Assignee: CYBERONICS INC (CYBE-N)
Inventor: ADKINS A; BAKER R G; TERRY R S
Number of Countries: 019 Number of Patents: 010
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
WO 9309841 A1 19930527 WO 92US9692 A 19921118 199322 B
AU 9331320 A 19930615 AU 9331320 A 19921118 199340
US 5304206 A 19940419 US 91793842 A 19911118 199415

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EP 613389      A1  19940907  EP 92925149     A   19921118  199434
                              WO 92US9692     A   19921118
JP 7504095     W   19950511  WO 92US9692     A   19921118  199527
                              JP 93509381     A   19921118
AU 666901      B   19960229  AU 9331320      A   19921118  199616
EP 613389      A4  19960403  EP 92925149     A               199642
EP 613389      B1  20010919  EP 92925149     A   19921118  200155
                              WO 92US9692     A   19921118
DE 69232073    E   20011025  DE 632073       A   19921118  200171
                              EP 92925149     A   19921118
                              WO 92US9692     A   19921118
CA 2123314     C   20020820  CA 2123314      A   19921118  200263
                              WO 92US9692     A   19921118
Priority Applications (No Type Date): US 91793842 A 19911118
Cited Patents: US 3236240; US 4024875; US 4102344; US 4886064; US 3945387;
  WO 9203983
Patent Details:
Patent No  Kind Lan Pg   Main IPC     Filing Notes
WO 9309841     A1 E  26 A61N-001/18
   Designated States (National): AU CA JP
   Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL SE
AU 9331320     A         A61N-001/18   Based on patent WO 9309841
US 5304206     A     11  A61N-001/08
EP 613389      A1 E  26  A61N-001/18   Based on patent WO 9309841
   Designated States (Regional): DE FR GB IT NL SE
JP 7504095     W         A61N-001/32   Based on patent WO 9309841
AU 666901      B         A61N-001/18   Previous Publ. patent AU 9331320
                                       Based on patent WO 9309841
EP 613389      A4        A61N-001/18
EP 613389      B1 E      A61N-001/18   Based on patent WO 9309841
   Designated States (Regional): DE FR GB IT NL SE
DE 69232073    E         A61N-001/18   Based on patent EP 613389
                                       Based on patent WO 9309841
CA 2123314     C  E      A61N-001/18   Based on patent WO 9309841
Abstract (Basic): WO 9309841 A
        The neural stimulator includes a stimulus generator (10)
    implanted in a surgically-formed skin pocket of a patient (30), having
    an hermetically sealed bio-compatible housing (21) in which the
    generator supplies an output signal via the lead system (22), to an
    electrode  array (25) located near the vagus nerve (27). A telemetry
    wand (33) is connected to a computer for communication with the
    implanted device.
        An accelerometer of piezoelectric element sensor is bonded to the
    inner surface of the housing immediately below the skin surface, such
    that vibrations or pressure changes on the housing, are readily
    detected. The device can then be activated to the 'on' state, according
    to patient demand, in response to tapping on the skin overlying the
    implant site.
        USE/ADVANTAGE - Esp. for treating epileptic disorders. Adaptable
    for other activation processes, such as bracelets attached to a limb
    for detecting electrical impulses at the onset of the disorder.
        Dwg.2/13
Abstract (Equivalent): US 5304206 A
        The neurostimulator includes a stimulus generator responsive,
    when activated, to generate a programmable electrical waveform, and an
    electrode  array electrically connected to the stimulus generator
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for delivering the waveform to a selected nerve of the patient, such as the vagus nerve. The **neurostimulator** is programmed to provide the waveform with parameter values selected to **stimulate** the selected **nerve** to produce the predetermined modulation of the nerve's electrical activity.

The **neurostimulator** is implemented to respond to a patient initiated signal which may be derived either manually or automatically to selectively activate the **stimulus** generator. Response to a manually derived signal produces a signal to trigger activation of the **stimulus** generator. Response to an automatically derived signal indicative of a manifestation of the disorder being treated will separately trigger activation of the **stimulus** generator.

USE - Esp. for treatment of epilepsy.

Dwg.2/11

Derwent Class: P31; P34; S05; T01
International Patent Class (Main): A61N-001/08; A61N-001/18; A61N-001/32
International Patent Class (Additional): A61B-017/36; A61N-001/36; A61N-001/372

25/34/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
004019022
WPI Acc No: 1984-164564/198426
T-wave inhibiting system - is for transcutaneous nerve stimulator **system for treatment of pain and muscular problems**
Patent Assignee: PHYSIO TECHN INC (PHYS-N)
Inventor: CASTEL J C; KERWIN R G
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 4453547	A	19840612	US 81251139	A	19810406	198426	B

Priority Applications (No Type Date): US 81251139 A 19810406
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 4453547	A		6		

Abstract (Basic): US 4453547 A

THe system includes a **sensing** circuit which is coupled to detect the R-S waveform produced by the heart during its normal beating **pattern** . Upon detection of the R-S portion of the waveform, an electrical signal is produced and coupled to timing circuitry to produce a timing signal having a duration in excess of the normal period of the T-wave portion of the heartbeat. The timing signal inhibits the output of a transcutaneous **nerve stimulator** during the T-wave portion.

When the inhibiting circuit and transcutaneous **nerve stimulator** are coupled to a patient, the system provides an inhibiting signal beginning during the R-S portion of the waveform and extending through the T-wave portion to prevent application of the output from the transcutaneous **nerve stimulator** during the vulnerable period of the heart. The transcutaneous **nerve stimulator** can thus be used without endangering the patient from **electrical stimulation** .

3/4

Derwent Class: P34; S05
International Patent Class (Additional): A61N-001/36

29/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
016188423
WPI Acc No: 2004-346309/200432
Physiological pacing delivering type implantable medical device has electrode array at distal end of lead, with alternating series of electrodes and spacer elements

29/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015598679
WPI Acc No: 2003-660834/200362
Heart chambers pacing method, involves delivering pulse between cathode and anode such that direction of pulse occurs from one opposing chamber to another chamber

29/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015597001
WPI Acc No: 2003-659156/200362
Lead assembly for pacing and sensing **heart, has lead body to carry signals and connector placed at its proximal end and distal portion of lead with helical portion implanted within passage**

29/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014511316
WPI Acc No: 2002-332019/200237
Implantable cardiac stimulation **device for arrhythmias treatment, selects specific** sensing electrode configuration, **for** sensing **evoked responses due to application of** stimulation **pacing pulse to heart**

29/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
012041718
WPI Acc No: 1998-458628/199840
Multisite heart stimulator **for treatment of heart deficiencies - has** electrodes **placed at numerous sites, including two ventricular** electrodes **, and time for** stimuli **to open valves determined, to discover** best configuration

29/26,TI/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
011714456
WPI Acc No: 1998-131366/199813
Method for dynamic focusing of fields for coronary stimulation **- employs one or more** electrodes **energised from pacemaker source via variable impedance connectors generating** optimal **field** configuration

29/26,TI/7 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO
(c) 2004 JPO & JAPIO. All rts. reserv.
05442033
BIOLOGICAL SIGNAL PROCESSOR AND BIOLOGICAL **STIMULUS** RELAXING DEVICE

29/26,TI/8 (Item 1 from file: 371)
DIALOG(R)File 371:French Patents
(c) 2002 INPI. All rts. reserv. All rts. reserv.
000950170
Title: STIMULATEUR **CARDIAQUE MULTISITES POUR LE TRAITEMENT DES INSUFFISANCES CARDIAQUES PAR** STIMULATION
Patent and Priority Information (Country, Number, Date):
Patent: FR 2760369 - 19980911

31/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015207731
WPI Acc No: 2003-268267/200326
Implantable device for treating substrate has mechanism for emitting and delivering energy to substrate, programmable controller to vary type and/or amount of energy emitted, and sensor **for** sensing **condition of the substrate**

35/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
016216097
WPI Acc No: 2004-373985/200435
Cardiac arrhythmia treating apparatus, has electrode **status indicator circuit including state that is active when measured impedance between** electrodes **is within predetermined range and processor to change** therapy

35/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015852571
WPI Acc No: 2004-010398/200401
Implantable medical lead for monitoring cardiac activities, has left and right ventricular electrodes **, and pressure monitor that monitors pressure of right ventricle**

35/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015668837
WPI Acc No: 2003-731024/200369
Cardiac device for treating arrhythmia, e.g. atrial or ventricular arrhythmia, has arrhythmia detector, controller, injector, and shock generator

35/26,TI/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014642908
WPI Acc No: 2002-463612/200249
Treatment apparatus for use to provide arrhythmia therapy **to a patient**

comprises a sensing **circuit coupled to an implantable pulse generator and a subcutaneous** electrode array **coupled to a generator**

35/26,TI/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014593764
WPI Acc No: 2002-414468/200244
Implanted cardioverter-defibrillator power supply to provide electrical cardioversion/defibrillation pacing heart, has capacitor subsystem charged by in-built battery

35/26,TI/11 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013896756
WPI Acc No: 2001-380969/200140
Lead assembly attached to cardiac pacemakers has pacing and/or sensing electrode **with wire filament provided about circumference of lead body**

35/26,TI/13 (Item 13 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013797437
WPI Acc No: 2001-281649/200129
Apparatus for treating tissue by applying energy or drugs, for altering shape, density, relative geometry or tension in body tissue, e.g. bladder, esophagus, vagina, penis, larynx, pharynx and aortic arch

35/26,TI/14 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013749640
WPI Acc No: 2001-233869/200124
Implantable defibrillator includes protection circuit that has two sections each having current limiters to limit current during positive and negative phases of defibrillation pulses

35/26,TI/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013558508
WPI Acc No: 2001-042715/200106
A health monitoring garment which collects electrophysiological signals from the skin and interprets them and can be used to in reverse to effect cardiac pacing, defibrillation , to aid tissue healing etc.

35/26,TI/16 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013268943
WPI Acc No: 2000-440849/200038
Catheter assembly for treatment of cardiac conditions, has host processor which generates output that locates ablation electrode **relative to the** electrodes **in** array

35/26,TI/17 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013192904
WPI Acc No: 2000-364777/200031
Implantable cardiac stimulation **device makes** stimulation therapy **by pacing parameters of secondary pacing algorithm if parameters fall within parameter ranges computed to perform** stimulation **by primary algorithm**

35/26,TI/18 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
013033686
WPI Acc No: 2000-205537/200018
Implantable myocardial ischemia detection, indication and action method, in which therapy **is initiated, based on data gathered by** sensors **implanted within subject**

35/26,TI/19 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
012383372
WPI Acc No: 1999-189479/199916
Guiding system of therapeutic - electrode **in catheter**

35/26,TI/20 (Item 20 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
012152632
WPI Acc No: 1998-569544/199849
Device for treatment of malignant and tumour-carrying tissue - comprises capsule or lozenge to be swallowed containing the function unit to control the delivery of a substance at the affected site

35/26,TI/21 (Item 21 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
011855037
WPI Acc No: 1998-271947/199824
Asymmetric multiple electrode **support for cardiac treatment - Uses asymmetric** array **of splines between hub and base with geometry different near hub and near base**

35/26,TI/22 (Item 22 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010443822
WPI Acc No: 1995-345139/199545
Multifunctional therapeutic **appts - uses pair of** therapeutic electrodes **to integrate magnet** therapy **, heat** therapy **and** electric therapy **into one body, and uses low electric voltage and low current**

35/26,TI/23 (Item 23 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010381648

WPI Acc No: 1995-282962/199537
Appts. for introducing macromolecules into a patient's cells by means of electroporation - selected cells are targetted for treatment, becoming transiently porous to permit macromolecules to enter directly

35/26,TI/24 (Item 24 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010246015
WPI Acc No: 1995-147270/199519
Prophylactic implantable cardioverter defibrillator device for subcutaneous positioning within pectoral region - has battery contained within interior for providing electrical energy to circuitry and capacitor to enable effective treatment of mildly impaired cardiac arrhythmia condition

35/26,TI/25 (Item 25 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009917074
WPI Acc No: 1994-184785/199423
Defibrillation system with expandable electrode **and inflator - uses piston pump to distend and collapse intracardial** electrode **at onset and termination of abnormal cardiac activity**

35/26,TI/26 (Item 26 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
009460741
WPI Acc No: 1993-154268/199319
Implantable cardiac function monitor and stimulator **for diagnosis and** therapy **delivery - assesses impedance, electrocardiogram, and pressure measurements and then calculates various cardiac parameters which may be stored or telemetered to external monitor**

35/34/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
016206900 **Image available**
WPI Acc No: 2004-364786/200434
Multi-purpose electrode **mechanism for prediction or detection and control of changes in brain state, comprises cooling device to operatively apply cooling** therapy **to target tissue of patient's brain**
Patent Assignee: BHAVARAJU N C (BHAV-I); OSORIO I (OSOR-I); FLINT HILLS SCI LLC (FLIN-N)
Inventor: BHAVARAJU N C; OSORIO I
Number of Countries: 105 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200432720	A2	20040422	WO 2003US32192	A	20031009	200434	B
US 20040082984	A1	20040429	US 2002418154	P	20021011	200434	
			US 2003683647	A	20031010		

Priority Applications (No Type Date): US 2003930003 A 20031009; US 2002418154 P 20021011; US 2003683647 A 20031010
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes

WO 200432720 A2 E 38 A61B-000/00
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
US 20040082984 A1 A61F-007/00 Provisional application US 2002418154
Abstract (Basic): WO 200432720 A2

NOVELTY - Multi-purpose **electrode** mechanism for prediction/detection/control of changes in brain state, comprises shaft portion for insertion into target tissue of brain; cooling device to operatively apply cooling **therapy** to target tissue; **sensing** mechanism including **sensor** (s) monitoring a biological signal of patient; control mechanism to automatically initiate or terminate cooling **therapy** ; and energy source.

DETAILED DESCRIPTION - A multi-purpose **electrode** mechanism for prediction or detection and control of changes in brain state, comprises shaft portion structured for insertion into target tissue of the brain of a patient; cooling device to operatively apply cooling **therapy** to the target tissue; **sensing** mechanism including **sensor** (s) (15) monitoring a biological signal of the patient; control mechanism responsive to the **sensing** mechanism and structured to, in response to signals from the **sensing** mechanism that indicate the occurrence of a change of state, automatically cause the cooling device to initiate or terminate the cooling **therapy** ; and energy source for powering the various components of the multi-purpose **electrode** mechanism.

USE - For prediction or detection and control of changes in brain state.

ADVANTAGE - The multi-purpose **electrode** provides for single, dual, simultaneous or sequential electrical and/or cryogenic **therapy** for control of brain state changes or of cortical and subcortical functions. The cooling device is activated in response to a cue including detection or prediction of a seizure, to minimize power consumption, a prerequisite for miniaturization and implantation.

DESCRIPTION OF DRAWING(S) - The figure depicts a multi-purpose **electrode** for detection and control of changes in brain state.

Electrode (13)
Sensor (15)
Coolant (27)
Inner input tube (33)
Cavity (35)
pp; 38 DwgNo 2a/6

Technology Focus:

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Components: The cooling device includes at least one extendable element housed within the shaft portion and structured to be extended outwardly from the shaft portion. The extendable element is extended manually. The cooling device includes motor structured to extend the extendable element outwardly from the shaft portion into the target tissue. The extendable element includes at least one cooling element constructed of a solid material having a high thermal conductivity. The cooling device includes a reservoir for containing coolant, and pumping mechanism

structured to pump coolant to and from the reservoir and to the cooling element. It includes a refrigerant source containing refrigerant at an elevated pressure; distribution mechanism for distributing the refrigerant from the source to the cooling element; and removing mechanism for removing the refrigerant from the cooling element or from the shaft portion. The extendable element includes a hollow cooling element with a closed distal end. The cooling element includes a dividing wall extending from near the proximal end to near the distal end of the cooling element that separates the cooling element into side-by-side channels with fluid flow communication between two channels at the distal end of the cooling element. The extendable element includes at least one **sensing** element, and the **sensing** mechanism includes at least one **sensor** in the extendable element. The cooling device includes at least one thermoelectric device cooled on the hot surface by a coolant or a refrigerant. It includes reservoir for containing coolant (27); inner input tube (33) with the shaft portion defining a cavity (35) surrounding the inner input tube; and pumping mechanism structured to pump coolant from the reservoir, to and through the inner input tube into the cavity, and from the cavity back to the reservoir. The **sensing** and control mechanisms are structured to sense in one-, two-, and/or three-dimensional **configurations** .

Derwent Class: B04; P31; P32; P34; S05
International Patent Class (Main): A61B-000/00; A61F-007/00
International Patent Class (Additional): A61F-007/12; **A61N-001/00**

35/34/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
015902052 **Image available**
WPI Acc No: 2004-059892/200406
Implantable neural stimulation device for treating peripheral vascular disease, controls application of generated stimulation pulses, to neural tissue of patient, based on sensed activity level
Patent Assignee: WEINBERG L P (WEIN-I)
Inventor: WEINBERG L P
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030212445	A1	20031113	US 2002144911	A	20020513	200406	B

Priority Applications (No Type Date): US 2002144911 A 20020513
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030212445	A1		11	A61N-001/08	

Abstract (Basic): US 20030212445 A1

NOVELTY - A physiologic **sensor** (108) senses an activity level of the patient. A microcontroller (60) controls application of the **stimulation** pulses generated by pulse generators (70,72) to a neural tissue of the patient through an **electrode configuration** switch (74), based on sensed activity level.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for peripheral vascular disease treating method.

USE - For treating peripheral vascular disease (PVD).

ADVANTAGE - The **stimulation therapy** is provided to the patient in active state and the degree of **stimulation** is adjusted automatically for long duration in closed loop manner to fit progression and regression of PVD controlling application of

stimulation pulses to neural tissue.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of the implantable **stimulation** device.
physiological **sensor** (10)
microcontroller (60)
rest pain pulse generator (70)
claudication pulse generator (72)
electrode configuration switch (74)
pp; 11 DwgNo 2/4
Derwent Class: P34; S05; U21; U22
International Patent Class (Main): **A61N-001/08**

35/34/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015538141 **Image available**
WPI Acc No: 2003-600297/200357
Mobile system for use as a muscle stimulation **apparatus, includes a plurality of remote units such as** electrodes **that can be positioned in random** configurations**, each with associated indicator light to facilitate correct identification**
Patent Assignee: ULTRA SCI INSTR LTD (ULTR-N)
Inventor: BURNHAM H A; JONES R L
Number of Countries: 026 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1321164	A1	20030625	EP 2001310839	A	20011221	200357 B

Priority Applications (No Type Date): EP 2001310839 A 20011221
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1321164	A1	E	12	A61N-001/02	

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
Abstract (Basic): EP 1321164 A1
NOVELTY - In a mobile apparatus such as a muscle **stimulation** system (10), a plurality of **electrodes** (18) can be arranged in random **configurations** and attached to a control unit (12) via individual cables (14). An indicator (25) is associated with each cable such that when a particular cable is selected by rotary switch (22), the indicator is activated to indicate to an operator which **sensor** is being adjusted.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(a) A muscle **stimulation** apparatus;
(b) A medical apparatus.
USE - For use in a mobile apparatus with multiple remote units for positioning in random **configurations** , for example a muscle **stimulation** system, microcurrent apparatus, galvanic apparatus, interferential **stimulator** apparatus, ultrasound **therapy** apparatus, electrocardiograph apparatus, infrared **therapy** apparatus, electroencephalogram apparatus, polygraph apparatus and electroanalgisia apparatus.
ADVANTAGE - The indicators associated with each cable, and thus attached **sensor** , enable operators to easily and accurately identify particular **sensors** in a **configuration** Thus avoiding potential problems and also the need to completely disassemble **configuration** to

identify a particular remote unit connection.
DESCRIPTION OF DRAWING(S) - The figure is a simplified representation of a muscle **stimulation** apparatus.
Muscle **stimulation** apparatus (10)
Control unit (12)
Cables (14)
Remote units or **electrodes** (18)
Rotary switch (22)
Indicators. (25)
pp; 12 DwgNo 1/3
Derwent Class: P31; P34; S05; V04; V06
International Patent Class (Main): **A61N-001/02**
International Patent Class (Additional): A61B-005/0428; H01R-029/00

35/34/9 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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014119720 **Image available**
WPI Acc No: 2001-603932/200169
Sensor **for an implanted** therapeutic electro - stimulation **apparatus has** sensor **elements with known molecules for the specific docking of organism molecules to monitor an increased range of parameters**
Patent Assignee: BIOTRONIK MESS & THERAPIEGERAETE GMBH (BIOT-N)
Inventor: SCHALDACH M
Number of Countries: 027 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1125598	A2	20010822	EP 2001250053	A	20010219	200169	B
DE 10007715	A1	20010823	DE 1007715	A	20000219	200169	
US 20020007199	A1	20020117	US 2001792764	A	20010219	200212	
US 6571129	B2	20030527	US 2001792764	A	20010219	200337	

Priority Applications (No Type Date): DE 1007715 A 20000219
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1125598	A2	G	9	A61N-001/365	
DE 10007715	A1			A61N-001/365	
US 20020007199	A1			A61N-001/36	
US 6571129	B2			A61N-001/18	

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
Abstract (Basic): EP 1125598 A2
NOVELTY - The **sensor** , to register the condition of an organism to trigger a **therapeutic** apparatus, preferably for the **electro - stimulation** of the heart and the like, has at least one **sensor** element (2) to register molecular genetic information.
DETAILED DESCRIPTION - The **sensor** , to register the condition of an organism to trigger a **therapeutic** apparatus, preferably for the **electro - stimulation** of the heart and the like, has at least one **sensor** element (2) to register molecular genetic information. The **sensor** element (2) has at least one docking element (4) where the molecules (6) of the organism can dock. The docking element (4) has a known specific docking characteristic, and contains a known molecule as a synthetic oligonucleotide and/or polymerase chain reaction (PCR) generated cDNA fragments (4).
At least one **sensor** element (2) is at least doubled at the **sensor** (1), in an identical form. At least one measurement unit is

linked to a majority of the **sensor** elements (2), which registers the hybridizing of a complementary molecule (6) of the organism at the known molecule (4). The measurement unit measures the electrical current which is generated by the hybridizing, a monitor to register the generated fluorescence, a monitor to detect the changes in the electrical charge distribution or a monitor to detect radioactive radiation generated by the hybridizing action. A memory stores the classification of the hybridizing for the known molecule (4), for comparison with known values stored in memory. The memory stores the timed development of the hybridizing action at the known molecule (4), to be compared with the measured timed development of the effect.

The memory holds stored hybridizing **patterns** at the known molecule (4), for comparison with the measured hybridizing **patterns** . The **sensor** elements (2) are arranged in rows, with a number of identical rows assembled together in a chessboard **pattern** . The **sensor** elements are immobilized on a carrier substrate of glass, silvered glass, gallium arsenide, silicate and other materials. The **sensor** is fitted with at least 100 **sensor** elements (2) as docking elements (4), preferably at least 100 and especially preferred 10000.

An INDEPENDENT CLAIM is included for a medical **therapeutic** apparatus with a **sensor** (1) to deliver input signals, and a **therapeutic** applicator controlled by the output signals.

USE - The apparatus is for the **electro** - **stimulation**0 of the heart such as a pacemaker or defibrillator. The **sensor** registers irregular heart rhythms, and also muscle activity, lung function parameters, oxygen saturation, blood pressure, hormone level, and other physical parameters.

ADVANTAGE - The **sensor** can monitor an increased range of parameters for the **therapeutic** apparatus.

DESCRIPTION OF DRAWING(S) - The drawing shows schematic plan and side views of the **sensor** assembly.

Sensor (1)

Sensor elements (2)

Known docking molecule (4)

Organism molecules (6)

pp; 9 DwgNo 2/4

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - Preferred Features: The **therapeutic** apparatus is implanted, and the indicator signal is used at least indirectly for a programmer to set directly at least one **therapy** or operating condition parameter of the implanted system or at its manufacturing stage. The indicator signal is generated as an address signal for the memory in a look-up table format. The signal gives a scan of a given memory area to give a selected output signal. The carrier substrate can be of nylon or silicon.

Derwent Class: A89; B04; D16; P34; S05

International Patent Class (Main): **A61N-001/18** ; **A61N-001/36** ; **A61N-001/365**

35/34/10 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

014097801 **Image available**

WPI Acc No: 2001-582015/200165

Implantable medical device for delivering therapy **to patient's body and/or monitors physiologic condition of patient, comprises battery and operating**

system comprising clock circuit and adiabatic clock-powered logic circuits
Patent Assignee: MEDTRONIC INC (MEDT)
Inventor: GREENINGER D R; SCHU C A; THOMPSON D L
Number of Countries: 023 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200162335	A2	20010830	WO 2001US5778	A	20010223	200165	B
US 6415181	B1	20020702	US 2000513045	A	20000225	200248	
EP 1259289	A2	20021127	EP 2001912966	A	20010223	200302	
			WO 2001US5778	A	20010223		

Priority Applications (No Type Date): US 2000513045 A 20000225
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200162335	A2	E	56	A61N-001/00	
	Designated States (National): CA JP				
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR				
US 6415181	B1			A61N-001/362	
EP 1259289	A2	E		A61N-001/365	Based on patent WO 200162335
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR				

Abstract (Basic): WO 200162335 A2

NOVELTY - An implantable medical device comprises a battery, and an operating system that provides control and timing functions embodied in integrated circuits. The operating system comprises a clock circuit that provides adiabatic clock signals through a clock tree, and adiabatic clock-powered logic circuits responsive to the adiabatic clock signals.

DETAILED DESCRIPTION - An implantable medical device (IMD) comprises:

(a) a battery that provides battery energy; and

(b) an operating system, powered by the battery energy, that provides control and timing functions embodied in integrated circuits.

The operating system further comprises:

(i) a clock circuit, powered by the battery energy, that provides adiabatic clock signals through a clock tree; and

(ii) adiabatic clock-powered logic circuits formed on the integrated circuits coupled with the clock tree and responsive to the adiabatic clock signals to perform a defined circuit function employing the energy of the adiabatic clock signal and in timed synchrony with the adiabatic clock signal.

USE - The implantable medical device, e.g. implantable cardiac pacing system, delivers a **therapy** to a patient's body and/or monitors a physiologic condition of a patient (claimed).

ADVANTAGE - The IMD delivers a **therapy** on a timed basis to a patient dependent upon a physiologic condition of a patient. The IMD has an adiabatic clock-power logic, which may be used alone, or in conjunction with self-timed logic, that reduces power consumption, and increases and improves processing capabilities. The use of self-timed logic with adiabatic clock-powered logic reduces dynamic power consumption and dissipation in the remaining clock tree. The diminution of the clock tree makes integrated circuit chip real estate available to incorporate further clocked and self-timed logic in it to increase random access memory or to add further IMD functional operations. The decrease in dynamic power consumption and the available real estate enables the addition of further features to the IMD operating system

while maintaining a desired battery lifetime. The use of self-timed logic circuits reduces complex timing analysis and worst case **design** analysis and simulation. The adiabatic operation of the adiabatic clock-powered logic reduces its energy consumption, reducing the energy consumption of the entire complementary metal oxide semiconductor logic of the IMD from energy consumed by conventional clocked logic.

DESCRIPTION OF DRAWING(S) - The figure shows a block diagram of a system architecture of an IMD that incorporates delivery of a **therapy** and/or physiologic input signal processing in which adiabatic clock-powered logic can be employed alone or in conjunction with self-timed logic.

pp; 56 DwgNo 2/16

Technology Focus:

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Device: The IMD further comprises:

(a) self-timed logic circuits formed on the integrated circuit to perform defined circuit functions independent of the adiabatic clock signals; and

(b) mechanism for **sensing** a physiologic condition of the patient and providing a physiologic signal.

Preferred Component: The self-timed logic circuit further comprises a signal processor comprising a digital signal processor; and a microcomputer comprising a microprocessor, a timing and control bus, and random access memory/read only memory that establishes timed out time periods and performs **therapy** delivery and/or monitoring functions. The adiabatic clock-powered logic circuit comprises:

(i) timers that time out time periods as multiples of the clock time period in response to a sense event signal;

(ii) mechanism responsive to time-out of a time period by the timer for performing a first device operation; and

(iii) a mechanism responsive to a sense event signal provided during time-out of a time period for performing a second device operation. The mechanism for **sensing** a physiologic condition further comprises a physiologic **sensor** comprising sense **electrodes** .

Preferred Function: The digital processor:

(a) provides analog-to-digital conversion of the physiologic signal with reference to predetermined discrimination criteria;

(b) determines the presence or absence of a predefined characteristic of the physiologic signal; and

(c) provides a sense event signal upon determination of the pre-defined characteristic.

The physiologic **sensor** senses an electrical signal of a body organ or muscle; a cardiac signal; or a condition or state of the body comprising physical activity of the body, blood pressure, blood temperature, blood gas concentration, and blood pH.

Derwent Class: B04; P34; S05

International Patent Class (Main): **A61N-001/00** ; **A61N-001/362** ; **A61N-001/365**

35/34/12 (Item 12 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013870622 **Image available**

WPI Acc No: 2001-354834/200137

Cuff for biological soft tissue as electrode **for selective simultaneous and/or monitoring of nerve groups, includes elastic collar member**

defining internal opening, and interface

Patent Assignee: NEUROCONTROL (NEUR-N); DURAND D M (DURA-I); TYLER D (TYLE-I)
Inventor: DURAND D M; TYLER D
Number of Countries: 091 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200122877	A1	20010405	WO 2000US26698	A	20000928	200137	B
AU 200076209	A	20010430	AU 200076209	A	20000928	200142	
US 6456866	B1	20020924	US 99409315	A	19990928	200266	

Priority Applications (No Type Date): US 99409315 A 19990928
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200122877	A1	E	25	A61B-005/04	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200076209	A	A61B-005/04	Based on patent WO 200122877
US 6456866	B1	A61B-005/04	

Abstract (Basic): WO 200122877 A1

NOVELTY - Cuff has an elastic collar member defining an internal opening with an internal **configuration** of a height less than Y and a width longer than X, and an interface to deliver **therapy** or reception of information from a soft tissue filament. The collar exerts a force on the filament to gradually reshape to the **configuration** of the opening. The resulting pressure in the filament is less than 80 mmHg.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of altering a biological soft tissue comprising surgically assessing a soft tissue filament, placing the inventive cuff in the filament, and applying a gradual force to the filament.

USE - The cuff is used in biological soft tissue useful as an **electrode** for selective simultaneous and/or monitoring of nerve groups. It is also useful as a delivery system for localized application of medication, e.g. bachlofin, and as a **sensor** for chemical approval. It is also useful in medicinal infusers and implantable biomedical devices for introducing, monitoring, or removing matter, fluids, or energy. It is also useful to record sensory neural activity, **stimulate** motor output, and in treating sleep apnea.

ADVANTAGE - The invention solves the deficiencies in the prior art. It provides selectively, i.e. the ability to activate and record a specific population or subset of axons. The cuff is non-invasive to the soft tissue and minimizes the damage to this protective neural tissue. It can be implanted without damage to the subject nerve, and allows swelling and movement.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of the nerve cuff on a nerve.

Nerve (60)

pp; 25 DwgNo 5/7

Technology Focus:

TECHNOLOGY FOCUS - INSTRUMENTATION AND TESTING - Preferred Component: The collar has top beam with a first side joined to a side of a bottom beam by a web member. The soft tissue is a hypo-glossal nerve (60) or a muscle and the interface is **electrodes** . The blood

that flows in the tissue is not reduced to less than 70%, preferably less than 80%.

POLYMERS - Preferred Material: The collar comprises an elastomeric material, preferably a silicone elastomer, or a nonconductive material.

Preferred Property: The collar exerts a force of 2-50 mmHg in the soft tissue

Derwent Class: A96; P31; P34; S05
International Patent Class (Main): A61B-005/04
International Patent Class (Additional): **A61N-001/05**

35/7/27 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO

05816352 **Image available**
ELECTRIC THERAPEUTIC APPARATUS FOR DOMESTIC USE
PUB. NO.: 10-099452 [JP 10099452 A]
PUBLISHED: April 21, 1998 (19980421)
INVENTOR(s): ISHII KAZUNORI
YAMASHITA TATSUO
APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD [000582] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 08-258089 [JP 96258089]
FILED: September 30, 1996 (19960930)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an **electric therapeutic** apparatus for domestic use of warmth potential type or heating potential type in which heat emitting wire(s) or potential wire(s) are of potential output **configuration** whereby it is practicable to reduce the drop of the induction potential output caused by contacting of the potential witr for the potential output with the potential wire or influenced by the heat emitting wire for warmth feed located in the neighborhood at the time of potential **therapy** and also a shift of the set temperature of the heat emitting wire in the heating type potential **therapeutic** apparatus capable of potential treatment through application of warmth where the temperature **sensing** part of the heat emitting wire is influenced by the potential output in the contacting part, etc., of this potential wire with the heat emitting wire.

SOLUTION: A sheet-form constituent member 4 is furnished separately with a potential wire inserting hole to admit insertion of a potential wire 3 and a hole to admit insertion of a heat emitting wire 2, and thereby the two sorts of wires 3 and 2 are arranged separately, and there is no risk that they influence each other, and malfunctioning in the potential output, heating temperature, etc., can be reduced

35/7/28 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

04293530 **Image available**
ELECTROTHERAPEUTIC DEVICE
PUB. NO.: 05-285230 [JP 5285230 A]
PUBLISHED: November 02, 1993 (19931102)
INVENTOR(s): USUI SHINGO
APPLICANT(s): SANYO ELECTRIC CO LTD [000188] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 04-095362 [JP 9295362]
FILED: April 15, 1992 (19920415)

ABSTRACT

PURPOSE: To shorten the time required for preheating the conductor of a **therapeutic** device main body and to eliminate the danger of causing burns, etc., by providing an attaching portion to which the conductor is attached, and providing a **sensor** for detecting attachment of the conductor to the attaching portion, and controlling electricity to a heating element according to the output of the **sensor** .

CONSTITUTION: A heating element 3 which is heated by passing a current through the insulative base of a **therapeutic** conductor is printed in **patterns** and is covered with an **electrode** body 4. The **therapeutic** conductor can be stuck to an attaching portion on the back side of a **therapeutic** device main body and a **sensor** 15 having a pair of spaced-apart terminals disposed on the attaching portion is provided to detect the current flowing via the conductive pad of the **therapeutic** conductor, so as to determine whether or not the **therapeutic** conductor is stuck to the attaching portion. While the **sensor** 15 detects that the **therapeutic** conductor is being stuck to the attaching portion, a heat control circuit 20 passes electricity to the whole part of the heating element 3 so as to increase the heating value, whereas when the **sensor** 15 does not detect sticking of the conductor to the attaching portion the circuit 20 performs control to cut off electricity to the heating element 3, thereby decreasing the heating value.

35/7/29 (Item 3 from file: 347)

DIALOG(R)File 347:JAPIO

04293529 **Image available**

ELECTROTHERAPEUTIC DEVICE

PUB. NO.: 05-285229 [JP 5285229 A]

PUBLISHED: November 02, 1993 (19931102)

INVENTOR(s): USUI SHINGO
USHIO NOBUYUKI
MURAMATSU HIROMI

APPLICANT(s): SANYO ELECTRIC CO LTD [000188] (A Japanese Company or Corporation), JP (Japan)

APPL. NO.: 04-095361 [JP 9295361]

FILED: April 15, 1992 (19920415)

ABSTRACT

PURPOSE: To surely detect the preheated state of the conductor of a **therapeutic** device main body by providing an attaching portion to which the conductor is attached, and providing the attaching portion with a temperature **sensor** for detecting the temperature of the conductor, and providing an alarm means for notifying that the conductor has reached a predetermined temperature according to the output of the temperature **sensor**.

CONSTITUTION: A heating element 3 which is heated when a current is passed through the insulative base of a **therapeutic** conductor is printed in **patterns** and is covered with an **electrode** body 4. The **therapeutic** conductor can be stuck to an attaching portion provided on the back side of a **therapeutic** device main body, and a temperature **sensor** 14 comprising a thermistor is disposed on the attaching portion to detect the temperature of the **therapeutic**0 conductor being stuck to the attaching portion. When either an **electrotherapeutic** mode or a conjunction mode is selected an LED display circuit 24 causes an LED 12 to blink synchronously with **therapeutic** pulses supplied to the **electrode** body 4, while when a heating mode is selected the circuit 24 keeps the LED 12 lighting until the temperature **sensor** 14 detects that the **therapeutic** conductor has

reached a predetermined temperature, and causes the LED 12 to blink when the temperature **sensor** 14 detects that the **therapeutic** conductor 1 has reached said predetermined temperature.

43/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015838493
WPI Acc No: 2003-900697/200382
Implantable medical device e.g. implantable neuro stimulator , **dynamically configures** electrode **to independently deliver pulse trains associated with** therapy **programs, to patient**

43/34/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008888526 **Image available**
WPI Acc No: 1992-015795/199202
Transcutaneous therapeutic electrical stimulator - with at least some of parameters of electrical impulses actuated by use of key
Patent Assignee: MINNESOTA MINING & MFG CO (MINN)
Inventor: LEE J H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5072730	A	19911217	US 90538154	A	19900614	199202	B

Priority Applications (No Type Date): US 90538154 A 19900614; US 90538154 A 19900614
Abstract (Basic): US 5072730 A
The transcutaneous **electrical stimulator** comprises a key having one or more wards and a housing having an aperture. The housing further has a keyway aligned with the aperture, the aperture being adapted to admit the key and the keyway supporting and aligning the key. Enclosed within the housing is a generator for therapeutic electrical impulses of electrical energy, being adapted to respond to a **pattern** of status conditions and responsively modify the electrical parameters of the electrical impulses.
The electrical energy is delivered to a location for therapy. A control enclosed within the housing adjacent the keyway regulates the generator the control communicating to the generator at least some of the status conditions to which the generator is responsive. When the key is inserted into the keyway and rotated, the ward contacts and actuates the controller.
USE - Medical **stimulator** to deliver **therapeutic** electrical impulses, esp. for transcutaneous **electrical nerve stimulation** .
Dwg.1/3
Derwent Class: P34; S05
International Patent Class (Additional): **A61N-001/36**

65/34/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010725333 **Image available**
WPI Acc No: 1996-222288/199622
System for providing electrical stimuli **for auditory prosthesis - has** stimulator **producing** stimuli **and acting in** response **to signal**

processor which operates in accordance with predetermined instruction set
Patent Assignee: UNIV MELBOURNE (UYME)
Inventor: CLARK G; IRLICHT L
Number of Countries: 021 Number of Patents: 009
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9612383	A1	19960425	WO 95AU686	A	19951017	199622	B
AU 9536460	A	19960506	AU 9536460	A	19951017	199636	
EP 787415	A1	19970806	EP 95933996	A	19951017	199736	
			WO 95AU686	A	19951017		
JP 10508442	W	19980818	WO 95AU686	A	19951017	199843	
			JP 96512799	A	19951017		
AU 708391	B	19990805	AU 9536460	A	19951017	199943	
US 5991663	A	19991123	WO 95AU686	A	19951017	200002	
			US 97817481	A	19970416		
US 6064913	A	20000516	US 97817481	A	19970416	200031	N
			US 99334823	A	19990617		
EP 787415	B1	20020410	EP 95933996	A	19951017	200227	
			WO 95AU686	A	19951017		
DE 69526362	E	20020516	DE 626362	A	19951017	200240	
			EP 95933996	A	19951017		
			WO 95AU686	A	19951017		

Priority Applications (No Type Date): AU 948837 A 19941017; US 99334823 A 19990617
Cited Patents: AU 8546815; EP 54418; US 4408608; US 4593696; WO 9103913
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9612383	A1	E	34	H04R-025/00	
Designated States (National): AU CA JP US					
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE					
AU 9536460	A				Based on patent WO 9612383
EP 787415	A1	E			Based on patent WO 9612383
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
JP 10508442	W		57	H04R-025/00	Based on patent WO 9612383
AU 708391	B				Previous Publ. patent AU 9536460
					Based on patent WO 9612383
US 5991663	A			H04R-025/00	Based on patent WO 9612383
US 6064913	A			A61N-001/36	Div ex application US 97817481
					Div ex patent US 5991663
EP 787415	B1	E		H04R-025/00	Based on patent WO 9612383
Designated States (Regional): DE FR GB					
DE 69526362	E			H04R-025/00	Based on patent EP 787415
					Based on patent WO 9612383

Abstract (Basic): WO 9612383 A

An auditory prosthesis comprises a signal processor providing control signals to a **stimulator** which provides **electrical stimuli** to a human cochlea and includes an **electrode array** located within the cochlea. The processor processes electrical signals corresponding to an acoustic system in accordance with a predetermined instruction set which determines the **stimulation** to be applied in **response** to the acoustic signal.

In **response** to the processor, the **stimulator** produces a set of **stimuli** which includes a first **stimulus** pulse for an **electrode** and a further pulse within the relative refractory period of a number of

stimulated nerve fibres. The set is selected such that the neural structures of a patient have a time domain **response** which approximates to that of a normal hearing person to the acoustic signal.

ADVANTAGE - **Electrical stimuli** produced now better approximates the time domain **response** of the neural structures of a normal hearing person.

Dwg.2/16

Derwent Class: P32; P34; S05; W04
International Patent Class (Main): **A61N-001/36** ; H04R-025/00
International Patent Class (Additional): A61F-002/18; A61F-011/04; H04R-001/00

65/34/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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008764314 **Image available**
WPI Acc No: 1991-268327/199137
Transcutaneous electrical nerve stimulation **device - has transistor output short-circuit stage for improved output pulse shape**
Patent Assignee: PIERENKEMPER GMBH (PIER-N)
Inventor: KREUTNER B
Number of Countries: 014 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 445359	A	19910911	EP 90119844	A	19901016	199137	B
US 5291883	A	19940308	US 90627092	A	19901213	199410	

Priority Applications (No Type Date): DE 4007542 A 19900309
Cited Patents: 1.Jnl.Ref; DE 8910361; FR 61706
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 445359	A				
	Designated States (Regional): AT BE CH DE ES FR GB GR IT LI LU NL SE				
US 5291883	A		5	A61N-001/40	

Abstract (Basic): EP 445359 A

The device has an energy supply, a frequency generator and an electrical circuit, providing different output frequencies of variable intensity, supplied to the output **electrodes** , with an output short-circuit stage for improving the output pulse shape.

The output short-circuit stage has a transistor (T1) used to control a second transistor (T2) in **response** to supplied control pulses. The latter are inverted by the first transistor (T1), for switching of the second transistor (T2) by the negative pulse flanks, for short-circuit of the output via the discharge resistance (Rent) coupled to its emitter.

ADVANTAGE - Provides precise shape therapeutic pulses. (6pp Dwg.No.6/6

Abstract (Equivalent): US 5291883 A

The apparatus provides transcutaneous **electric nerve stimulation** (TNS) using a power supply, a frequency generator and an electric circuit for the generation of different output frequencies of variable intensity at the output **electrodes** . The **electrodes** may be connected to the apparatus and to an output short circuit to improve the pulse form emitted.

The output short circuit network includes a transistor (T1), which upon actuation by a triggering pulse activates with its collector the base of a subsequent transistor (T2). The trigger pulse is inverted in

the transistor (T1), where the transistor (T2) switches to the negative pulse flank and the outlet is short-circuited by a discharge resistor R(ent) connected to the emitter side.

ADVANTAGE - Greatly accelerates discharge of body capacitor and may be used in all TNS devices of similar **design** .

Dwg.6/6

Derwent Class: P34; S05
International Patent Class (Main): A61N-001/40
International Patent Class (Additional): **A61N-001/36**

65/34/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

003599391
WPI Acc No: 1983-E7589K/198314

Chronic auditory stimulation **system - has** electrodes **positioned close to cochlea and has receiver module and external transmitter arrangement**

Patent Assignee: HOCHMAIR I J (HOCH-I)
Inventor: HOCHMAIR E S
Number of Countries: 017 Number of Patents: 011
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 8300999	A	19830331				198314 B
EP 76069	A	19830406	EP 82304919	A	19820917	198315
AU 8289540	A	19830408				198326
BR 8207864	A	19830830				198341
JP 58501535	W	19830916				198343
US 4419995	A	19831213	US 81303547	A	19810918	198401
DK 8301993	A	19831128				198403
HU 33390	T	19841128				198501
CA 1194552	A	19851001				198544
EP 76069	B	19860827				198635
DE 3272899	G	19861002				198641

Priority Applications (No Type Date): US 81303547 A 19810918
Cited Patents: 1.Jnl.Ref; US 2995633; US 3384090
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 8300999	A	E	19		

Designated States (National): AU BR DK HU JP SU

EP 76069	A	E			

Designated States (Regional): AT CH DE FR GB IT LI NL SE

EP 76069	B	E			

Designated States (Regional): AT CH DE FR GB IT LI NL SE

Abstract (Basic): WO 8300999 A

The receiver module (22) is implanted surgically between the temporal muscle (18) and the skull bone (20). The coil (10) of the transmitter is arranged relative to the ear hook (12) so that, when the ear hook is on the auricle (14), the transmitter coil is aligned with the coil of the implanted receiver. An insulated lead (24) with a **stimulating** tip **electrode** (26) and a ground **electrode** (28), is coupled between the receiver output and the tissue to be **stimulated** .

A retrico-auricular incision is made and the periosteum is lifted to mill a delve into the temporal bone. The receiver is secured in the delve. The lead (24) is caused to enter the cavity of the middle ear and the active **electrode** is secured near the base of the cochlea to the promontory bone (30) or to the round window membrane (32). The

electrodes are energised by a frequency band of sufficient width for complete speech **patterns** but without causing pain or discomfort to the patient.

Abstract (Equivalent): EP 76069 B

A system for chronic auditory **stimulation** comprising: transmission means (52,64) for generating and transmitting a frequency band signal having predetermined amplitude and frequency dependent characteristics corresponding to speech signals, receiver means (36) for receiving said frequency band signal, **electrodes** for close positioning relative to the cochlea, and interconnection means (24) connecting said receiver means and said **electrodes** whereby said **electrodes** **respond** to said frequency band signal and establish an **electrical** field for **stimulating** the cochlea in **response** to speech signals, characterised in that the **electrodes** comprise a **stimulating** **electrode** (26) and a ground or indifferent **electrode** (28) of which the latter is substantially larger in surface area than the **stimulating** **electrode** so that the current density at the site of the **stimulating** **electrode** (26) is several times greater than the current density at the ground or indifferent **electrode** (28), whereby **stimulation** is focused at the point of contact of the **stimulating** **electrode** , both **electrodes** being adapted for positioning close to but outside the cochlea. (10pp)

Abstract (Equivalent): US 4419995 A

Chronic auditory **stimulation** is achieved by establishing an electric field at the base of the cochlea hence full speech **patterns** are imparted to a patient. Penetration of the cochlea is not required, reducing the risk in installing the implanted **electrodes** . In a preferred arrangement the **electrodes** are disc shaped with the ground **electrode** being larger than the active **electrode** .

The active **electrode** is pref. placed in the round window at the base of the cochlea or on the promontory. The ground **electrode** is placed 2-10 mm from the active **electrode** to confine the electric field. The interconnections to the **electrodes** are tissue compatible insulation covered wires, minimizing **stimulation** of cutaneous **nerve** fibres. (8pp)e

Derwent Class: P32; P34; S05; W02; W04

International Patent Class (Additional): A61F-011/04; **A61N-001/18**

```
File 348:EUROPEAN PATENTS 1978-2004/Jun W01
File 349:PCT FULLTEXT 1979-2002/UB=20040603,UT=20040527
Set     Items   Description
S1       3095   NERVE? ?(2N)STIMULAT? OR NEUROSTIMUL? OR NEURO()STIMUL? OR
            NERVE? ?(1N)THERAP?
S2     814694   CONFIGURATION? ? OR ARRAY? ? OR DESIGN? ? OR PATTERN? ? OR
            CONSTELLATION? ?
S3     253465   SENSOR OR SENSORS OR SENSING
S4     773699   RESPONSE? ? OR RESPOND??? OR REACT????
S5     534658   OPTIM? OR FAVOR???? OR FAVOUR????
S6     786762   BEST OR MOST
S7     304724   COMPUTER????
S8     172956   CONTROLLER? ?
S9     181154   PATIENT OR PATIENTS
S10      5650   ELECTRIC??(2N)STIMUL?
S11       317   ELECTROSTIMUL?
S12       148   ELECTRO()(STIMUL? OR THERAP?)
S13       461   ELECTRIC??(1W)THERAP?
S14    151262   ELECTROTHERAP? OR ELECTRODE? ?
S15    117604   STIMUL?????
S16      8518   IC=A61N-001
S17         1   PN='WO 2003043690'
S18         1   PN='WO 200326738'
S19         1   PN='WO 200326736'
S20         1   PN='WO 200436765'
S21         1   PN='WO 200382402'
S22         5   S17:S21
S23         5   S1 AND S22
S24         5   S2 AND S22
S25         2   S3 AND S22
S26         3   S4 AND S22
S27         4   S5 AND S22
S28         3   S6 AND S22
S29         1   S7 AND S22
S30         3   S8 AND S22
S31         4   S9 AND S22
S32         4   S10 AND S22
S33         0   S11 AND S22
S34         5   S14 AND S22
S35         5   S15 AND S22
S36       250   S1(S)S2(S)S14(S)S15
S37       169   S16 AND S36
S38        28   S36(S)S5:S6 AND S16
S39        27   S38 NOT S22
S40         1   PN='WO 200285452'
S41         2   PN='WO 9309841'
S42         1   PN='WO 200432720'
S43         1   PN='WO 200162335'
S44         1   PN='WO 200122877'
S45         2   PN='WO 9612383'
S46         1   PN='WO 8300999'
S47         1   PN='EP 1381425'
S48         1   PN='EP 613389'
S49         1   PN='EP 1321164'
S50         1   PN='EP 1125598'
S51         1   PN='EP 1259289'
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S52          1   PN='EP 787415'
S53          1   PN='EP 445359'
S54          1   PN='EP 76069'
S55         27   S39 NOT S40:S54
S56       1253   IC=(A61N-001/36 OR A61N-001/18)
S57         12   S55 AND S56
S58         15   S55 NOT S57
S59          3   (S36(S)S4(S)S5:S6 AND S16) NOT S57
S60          3   S59 NOT S40:S54

57/6/1     (Item 1 from file: 348)
00638860
TELEMETRY SYSTEM AND APPARATUS

 57/6/3     (Item 3 from file: 348)
00430690
An electrode glove for use in transcutaneous electrical nerve stimulation
    (tens).

 57/6/4     (Item 1 from file: 349)
01070048    **Image available**
SELECTIVE NERVE FIBER STIMULATION FOR TREATING HEART CONDITIONS

 57/6/9     (Item 6 from file: 349)
00908184    **Image available**
ELECTRO-ACUPUNCTURE DEVICE WITH STIMULATION ELECTRODE ASSEMBLY

 57/6/10     (Item 7 from file: 349)
00901894    **Image available**
METHOD AND APPARATUS TO MINIMIZE THE EFFECTS OF A CARDIAC INSULT

 57/6/11     (Item 8 from file: 349)
00786147    **Image available**
COCHLEAR IMPLANT

 57/6/12     (Item 9 from file: 349)
00386200    **Image available**
COCHLEAR ELECTRODE ARRAY EMPLOYING DIELECTRIC PARTITIONS

 57/3,AB,K/2     (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2004 European Patent Office. All rts. reserv.
00514837
Combined nerve fiber and body tissue stimulation apparatus and method.
Kombiniertes Nervenfaser- und Korpergewebe-Reizstromgerat und Verfahren
    dafur.
Appareil de stimulation de fibre nerveuse et tissu corporel combine et
    methode.
PATENT ASSIGNEE:
  STAODYN, INC., (1389810), 1225 Florida Avenue, Longmont, Colorado 80501,
    (US), (applicant designated states: DE;FR;GB;IT;NL;SE)
INVENTOR:
  Bartelt, James T., 500 River Oaks Road, Half Moon Bay, California 94019,
    (US)
  Harris, Frank W., 640 Yale Road, Boulder, Colorado 80303, (US)
LEGAL REPRESENTATIVE:
```

Baillie, Iain Cameron et al (27951), c/o Ladas & Parry Altheimer Eck 2, D-80331 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 557562 A1 930901 (Basic)
APPLICATION (CC, No, Date): EP 92103445 920228;
PRIORITY (CC, No, Date): EP 92103445 920228
DESIGNATED STATES: DE; FR; GB; IT; NL; SE
INTERNATIONAL PATENT CLASS: **A61N-001/36** ; **A61N-001/34**
ABSTRACT EP 557562 A1

An electronic device and method are disclosed for effecting both nerve fiber and body tissue stimulation. Nerve fiber stimulation is primarily effected by application of pulses, and preferably by application of biphasic pulse pairs the pulses of which are spaced from one another in a pattern such that nerve fiber stimulation applied through plural active electrodes enhances pain suppression. Body tissue treatment is primarily effected by application of a net DC charge, and preferably by application of biphasic pulses that includes a greater number of either negative or positive pulses so that a net DC charge results. The DC charge level is maintained at a substantially constant selected value regardless of pulse variations within established broad limits, and the DC charge level is adjustable between operational modes, as needed. (see image in original document)

ABSTRACT WORD COUNT: 136
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	532
SPEC A	(English)	EPABF1	5959
Total word count - document A			6491
Total word count - document B			0
Total word count - documents A + B			6491

...SPECIFICATION pulses is shown and claimed in U.S. Patent No. 4,640,286, entitled "OPTIMIZED **NERVE** FIBER **STIMULATION** " issued February 3, 1987 to Thomas H. Thomson, and in U.S. Patent No. 4,803,988, entitled " **NERVE** FIBER **STIMULATION** USING PLURAL EQUALLY ACTIVE **ELECTR**ODES " issued February 14, 1989 to Thomas H. Thomson. **Nerve** fiber **stimulation** using biphasic pulses in a symmetrical **pattern** is shown and claimed in U.S. Patent No. 4,813,418, entitled " **NERVE** FIBER **STIMULATION** USING SYMMETRICAL BIPHASIC WAVEFORM APPLIED THROUGH PLURAL EQUALLY ACTIVE **ELECTRODES** ", issued March 21, 1989 to Frank W. Harris.

It has also been heretofore suggested that...

57/3,AB,K/6 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.
01001148
PATIENT-SPECIFIC PARAMETER SELECTION FOR NEUROLOGICAL EVENT DETECTION
SELECTION DE PARAMETRES SPECIFIQUES DU PATIENT POUR LA DETECTION DE COMPLICATIONS NEUROLOGIQUES
Patent Applicant/Assignee:
NEUROPACE INC, ATTN: Clarke A. Wixon, 255 Santa Ana Court, Sunnyvale, CA 94085, US, US (Residence), US (Nationality)
Inventor(s):
ECHAUZ Javier, NeuroPace, Inc., 10933 Crabapple Road #101, Roswell, GA 30075, US,
ESTELLER Rosana, NeuroPace, Inc., 10933 Crabapple Road #101, Roswell, GA 30075, US,

TCHENG Thomas K, NeuroPace, Inc., 255 Santa Ana Court, Sunnyvale, CA 94085, US,
PLESS Benjamin D, NeuroPace, Inc., 255 Santa Ana Court, Sunnyvale, CA 94085, US,
KISHAWI Eyad, NeuroPace, Inc., 255 Santa Ana Court, Sunnyvale, CA 94085, US,
GIBB Barbara, NeuroPace, Inc., 255 Santa Ana Court, Sunnyvale, CA 94085, US,
Legal Representative:
WIXON Clarke A (agent), NeuroPace, Inc., 255 Santa Ana Court, Sunnyvale, CA 94085, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200330734 A2-A3 20030417 (WO 0330734)
Application: WO 2002US32735 20021011 (PCT/WO US0232735)
Priority Application: US 2001977052 20011012
Designated States: CA JP
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 29664
English Abstract
An epileptiform activity patient-specific template creation system permits a user to efficiently develop an optimized set of patient-specific parameters for epileptiform activity detection algorithms. The epileptiform activity patient template creation system is primarily directed for use with an implantable **neurostimulator** (110) system having EEG storage capability, in conjunction with a **computer** software program operating within a computer workstation (212) having a processor, disk storage and input/output facilities for storing, processing and displaying patient EEG signals. The implantable **neurostimulator** is operative to store records of EEG data when neurological events are detected, when it receives external commands to record, or at preset or arbitrary times. The computer workstation operates on stored and uploaded records of EEG data to derive the patient-specific templates via a single local minimum variant of a multidimensional greedy line search process and a feature overlay process.
International Patent Class: **A61N-001/36**
Fulltext Availability: Detailed Description
Detailed Description
... an epileptiform activity patient template development system that allows the physician to efficiently develop an **optimized** set of patient-specific parameters for one or more epileptifon-n activity detection algorithms (also...03/030734 PCT/US02/32735 according to the invention. Additionally, during the post-operative testing, **stimulation** could be applied to attempt to induce epileptiform activity. These EEG **patterns** will be captured by the **neurostimulator** and uploaded to the programmer. Alternatively, or in addition, it is possible to transfer EEG
...
...EEG recording device or workstation to the programmer, if such recordings were made using implanted **electrodes** (although some ...may be necessary to do so). Baseline EEG information may be transmitted from the implanted **neurostimulator** at any time to provide examples of the patient's EEG during sleep and awake...

57/3,AB,K/7 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00953883
ACTUATION AND CONTROL OF LIMBS THROUGH MOTOR NERVE STIMULATION
ACTIONNEMENT D'UN MEMBRE PAR STIMULATION DES NERFS MOTEURS
Patent Applicant/Assignee:
BIOCONTROL MEDICAL LTD, 3 Giron Street, 56100 Yehud, IL, IL (Residence), IL (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
COHEN Ehud, 8 Hacarmel Street, 55900 Ganei Tikva, IL, IL (Residence), IL (Nationality), (Designated only for: US)
GROSS Yossi, House 205, 73160 Moshav Mazor, IL, IL (Residence), IL (Nationality), (Designated only for: US)
Legal Representative:
COLB Sanford T (et al) (agent), Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot, IL,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200287683 A2-A3 20021107 (WO 0287683)
Application: WO 2002IL331 20020426 (PCT/WO IL02000331)
Priority Application: US 2001843334 20010426
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 14337
English Abstract
Apparatus (20) for actuating a skeletal muscle of a patient is provided. The apparatus typically includes a plurality of **electrodes** (24), which are adapted to be placed in a vicinity of a motor nerve that innervates the skeletal muscle. A **control unit** (22), is preferably adapted to drive a current between two or more of the plurality of **electrodes**, and to **configure** the current such that a first subset of axons in the nerve is excited by the current and such that a second subset of axons in the nerve is not excited by the current.
Main International Patent Class: **A61N-001/18**
Fulltext Availability: Detailed Description
Detailed Description
... and the number of electrodes in the array are optimized based on the particular motor **nerve** to be **stimulated** .
In applications in which elements 35 comprise electromagnetic elements, control unit 22 preferably drives the...

57/3,AB,K/8 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00949305
METHOD AND APPARATUS FOR MEASUREMENT OF EVOKED NEURAL RESPONSE
PROCEDE ET APPAREIL DE MESURE DE REPONSES NEURONALES EVOQUEES
Patent Applicant/Assignee:
COCHLEAR LIMITED, 14 Mars Road, Lane Cove, New South Wales 2066, AU, AU (Residence), AU (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:
DALY Christopher Newton, 95 Cheryl Crescent, Bilgola Plateau, New South Wales 2107, AU, AU (Residence), AU (Nationality), (Designated only for: US)
NYGARD Tony Mikeal, 14 Stacey Close, Kariong, New South Wales 2250, AU, AU (Residence), AU (Nationality), (Designated only for: US)
EDER Helmut, c/- 14 Mars Road, Lane Cove, New South Wales 2066, AU, AU (Residence), DE (Nationality), (Designated only for: US)
Legal Representative:
F B RICE & CO (agent), 139 Rathdowne Street, Carlton, Victoria 3053, AU,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200282982 A1 20021024 (WO 0282982)
Application: WO 2002AU500 20020418 (PCT/WO AU0200500)
Priority Application: AU 20014462 20010418; AU 20017111 20010817
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11223
English Abstract
The invention provides a method of electrical artefact compensation in measurement of a neural response. The neural response is evoked by a first **stimulus**, after which a compensatory **stimulus** is applied in order to counteract a **stimulus** artefact caused by the first **stimulus**. The invention also provides for short circuiting the stimulating **electrode** subsequent to the first **stimulus**. A system for implementing such steps is also provided. The invention may be of application in measurement of physiological responses, including neural responses and in particular a neural response of the auditory nerve.
...International Patent Class: **A61N-001/36**
Fulltext Availability: Detailed Description
Detailed Description
... collection enables detection and confirmation of the normal operation of the device, and allows the **stimulation** parameters to be **optimised** to suit the .35 needs of the patient.
Typically, following the surgical implantation of the...

60/6/2 (Item 2 from file: 349)
00374608 **Image available**
METHOD AND APPARATUS FOR TEMPORARILY ELECTRICALLY FORCING CARDIAC OUTPUT AS A BACKUP FOR TACHYCARDIA PATIENTS

60/3,AB,K/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00767001
DEVICES AND METHODS FOR VAGUS NERVE STIMULATION
DISPOSITIFS ET METHODES DE STIMULATION DU NERF VAGUE
Patent Applicant/Assignee:
EMORY UNIVERSITY, 1380 S. Oxford Road, Atlanta, GA 30322, US, US

(Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
PUSKAS John D, 854 Carlton Ridge, Atlanta, GA 30322, US, US (Residence), CA (Nationality), (Designated only for: US)
Legal Representative:
WARREN William L (et al) (agent), Kilpatrick Stockton LLP, 2400 Monarch Tower, 3424 Peachtree Road, N.E., Atlanta, GA 30326, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200100273 A1 20010104 (WO 0100273)
Application: WO 2000US17222 20000623 (PCT/WO US0017222)
Priority Application: US 99141202 19990625
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 14146
English Abstract
The present invention relates to apparatus and methods for electrically inducing, pharmacologically maintaining cardiac asystole. The present invention also provides cutaneous **array electrodes** (900) that may be used non-invasive to stimulate the vagus nerve.
Main International Patent Class: **A61N-001/05**
Fulltext Availability: Detailed Description
Detailed Description
... to directly map the stimulation.
The multi-channel interrogator device box 10 automatically selects the **most appropriate electrode or electrodes of an array of electrodes** as a function of the cardiac...
...therefore, have a display, a plurality of numeric keys and knob dials 11, a vagus **nerve stimulation** switch, and a vagus nerve destimulation switch, that can independently access the 20 various **electrodes** electrically connected to a patient, such that an **electrode** 30 or **electrode** combination 31 can be manually selected.
The apparatus of the present invention further comprises a...

60/3,AB,K/3 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00252034
TREATMENT OF DEMENTIA BY NERVE STIMULATION
TRAITEMENT DE LA DEMENCE PAR LA STIMULATION D'UN NERF
Patent Applicant/Assignee:
CYBERONICS INC,
Inventor(s):
WERNICKE Joachim F,
TERRY Reese S Jr,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9400185 A1 19940106
Application: WO 92US5075 19920624 (PCT/WO US9205075)
Priority Application: WO 92US5075 19920624

Designated States: AU CA JP AT BE CH DE DK ES FR GB GR IT LU MC NL SE
Publication Language: English
Fulltext Word Count: 7247
English Abstract

A method of treating dementia, including cortical dementia, subcortical dementia, and multi-infarct dementia, includes applying to the patient's vagus nerve an **electrical stimulation** signal having parameter values selected to modulate the vagal electrical activity in a manner to desynchronize the patient's EEG pattern, by modulating the activity of the related brain structures.

Main International Patent Class: **A61N-001/05**
Fulltext Availability: Detailed Description
Detailed Description

... brain cells, and, in an awake, alert individual, should have the appearance of a noise **pattern** because the cells are operating independently. Rhythmic alpha activity emanating from the occipital region is...however, that the patient WO 94/00185 PCT/US92/05075 5 likely to experience the **most favorable** results are those individuals at a moderate stage rather than the more advanced stages of...

...of certain other types of dementia, such as multi-infarct dementia,

It is known that **most** nerves in the human body are composed of thousands of fibers, of different sizes designated...required to stimulate the myelinated fibers, and they exhibit a particular strength-duration curve or **respond** to a specific pulse width versus amplitude for stimulation. The A and B fibers can...

...to activate the A and B fibers to some extent as well . I

Usually,, **nerve stimulation** activates signals in both directions (bidirectionally). It is possible, however, through the use of special **electrodes** and waveforms, to selectively **stimulate** a **nerve** in one direction only (unidirectionally),

In a paper on the effects of vagal stimulation...

```
File 348:EUROPEAN PATENTS 1978-2004/Jun W01
File 349:PCT FULLTEXT 1979-2002/UB=20040603,UT=20040527
Set     Items   Description
S1       3095   NERVE? ?(2N)STIMULAT? OR NEUROSTIMUL? OR NEURO()STIMUL? OR
             NERVE? ?(1N)THERAP?
S2     814694   CONFIGURATION? ? OR ARRAY? ? OR DESIGN? ? OR PATTERN? ? OR
             CONSTELLATION? ?
S3     253465   SENSOR OR SENSORS OR SENSING
S4     773699   RESPONSE? ? OR RESPOND??? OR REACT????
S5     534658   OPTIM? OR FAVOR???? OR FAVOUR????
S6     786762   BEST OR MOST
S7     304724   COMPUTER????
S8     172956   CONTROLLER? ?
S9     181154   PATIENT OR PATIENTS
S10      5650   ELECTRIC??(2N)STIMUL?
S11       317   ELECTROSTIMUL?
S12       148   ELECTRO()(STIMUL? OR THERAP?)
S13       461   ELECTRIC??(1W)THERAP?
S14    151262   ELECTROTHERAP? OR ELECTRODE? ?
S15    117604   STIMUL?????
S16      8518   IC=A61N-001
S17      2907   S1(S)S10:S15
S18       385   S2(S)S17
S19       230   S16 AND S18
S20        36   S3(S)S19
S21        51   S3(S)S18
S22        36   S16 AND S21
S23     11807   S5:S6(1W)S1:S2
S24         1   S21(S)S23 [a duplicate]
S25        15   S17(S)S23
S26         8   S25 AND S16
S27         7   S26 NOT S24
S28         7   S25 NOT (S24 OR S26)
S29      1333   S2(S)S3(S)S4(S)(S1 OR S10:S15)
S30        15   S23(S)S29
S31        13   S30 NOT (S24 OR S26 OR S25)
S32         6   S16 AND S31
S33         7   S31 NOT S32

27/6/2     (Item 2 from file: 348)
00411903
BIDIRECTIONAL HELICAL ELECTRODE FOR NERVE STIMULATION

 27/6/7     (Item 5 from file: 349)
00170375
BIDIRECTIONAL HELICAL ELECTRODE FOR NERVE STIMULATION

 27/3,AB,K/1     (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS
(c) 2004 European Patent Office. All rts. reserv.
00514837
Combined nerve fiber and body tissue stimulation apparatus and method.
Kombiniertes Nervenfaser- und Korpergewebe-Reizstromgerat und Verfahren
    dafur.
Appareil de stimulation de fibre nerveuse et tissu corporel combine et
    methode.
```

PATENT ASSIGNEE:
STAODYN, INC., (1389810), 1225 Florida Avenue, Longmont, Colorado 80501, (US), (applicant designated states: DE;FR;GB;IT;NL;SE)
INVENTOR:
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PATENT (CC, No, Kind, Date): EP 557562 A1 930901 (Basic)
APPLICATION (CC, No, Date): EP 92103445 920228;
PRIORITY (CC, No, Date): EP 92103445 920228
DESIGNATED STATES: DE; FR; GB; IT; NL; SE
INTERNATIONAL PATENT CLASS: **A61N-001/36** ; **A61N-001/34**
ABSTRACT EP 557562 A1

An electronic device and method are disclosed for effecting both nerve fiber and body tissue **stimulation**. Nerve fiber **stimulation** is primarily effected by application of pulses, and preferably by application of biphasic pulse pairs the pulses of which are spaced from one another in a pattern such that nerve fiber stimulation applied through plural active electrodes enhances pain suppression. Body tissue treatment is primarily effected by application of a net DC charge, and preferably by application of biphasic pulses that includes a greater number of either negative or positive pulses so that a net DC charge results. The DC charge level is maintained at a substantially constant selected value regardless of pulse variations within established broad limits, and the DC charge level is adjustable between operational modes, as needed. (see image in original document)

ABSTRACT WORD COUNT: 136
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	EPABF1	532
SPEC A	(English)	EPABF1	5959
Total word count - document A			6491
Total word count - document B			0
Total word count - documents A + B			6491

...SPECIFICATION biphasic pulses is shown and claimed in U.S. Patent No. 4,640,286, entitled " **OPTIMIZED NERVE** FIBER **STIMULATION** " issued February 3, 1987 to Thomas H. Thomson, and in U.S. Patent No. 4,803,988, entitled " **NERVE** FIBER **STIMULATION** USING PLURAL EQUALLY ACTIVE **ELECTRODES** " issued February 14, 1989 to Thomas H. Thomson. **Nerve** fiber **stimulation** using biphasic pulses in a symmetrical pattern is shown and claimed in U.S. Patent No. 4,813,418, entitled " **NERVE** FIBER **STIMULATION** USING SYMMETRICAL BIPHASIC WAVEFORM APPLIED THROUGH PLURAL EQUALLY ACTIVE **ELECTRODES** ", issued March 21, 1989 to Frank W. Harris...

27/3,AB,K/3 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01040624
METHOD AND APPARATUS FOR ELECTROMAGNETIC STIMULATION OF NERVE, MUSCLE, AND BODY TISSUES
PROCEDE ET APPAREIL DE STIMULATION ELECTROMAGNETIQUE DE TISSUS NERVEUX, MUSCULAIRES ET HUMAINS

Patent Applicant/Assignee:
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Patent Applicant/Inventor:
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Legal Representative:
ASMUS Scott J (et al) (agent), Maine & Asmus, P.O. Box 3445, Nashua, NH 03061-3445, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200370317 A1 20030828 (WO 0370317)
Application: WO 2003US3028 20030203 (PCT/WO US0303028)
Priority Application: US 200277434 20020219; US 2002380132 20020506; US 2002266535 20021008
Designated States: AE AG AL AM AT (utility model) AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ (utility model) CZ DE (utility model) DE DK (utility model) DK DM DZ EC EE (utility model) EE ES FI (utility model) FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK (utility model) SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 12188
English Abstract
An electromagnetic **stimulating** system (11) and components configured to provide **stimulation** to tissues of the human body, including nerves, muscles (including superficial and deep muscles), or other body tissues without significant discomfort to the patient. The system utilizes an ergonomic, body-contoured, and confortable appliance (110) to encase a transducer (1) intended to deliver pulses of electromagnetic **stimulation** to targeted regions of the body. Transducer configurations include a substantially flat coil, a circumferential uninterrupted solenoid, and a circumferential, substantially solenoidal structure having an openable joint formed by a multiple conductor connector buckle. Index markings on the appliance allow for repetitive application, for more consistent therapy targeting specific anatomic regions with therapeutic pulsed electromagnetic fields.
Main International Patent Class: **A61N-001/00**
Fulltext Availability:
Detailed Description
Claims
Detailed Description
... a user to position the appliance such that the transducers are properly disposed to enable **optimum nerve stimulation** . Markings may also be placed on the appliance in such a way as to facilitate...
Claim
... a user to position said appliance such that said transducers are properly disposed to enable **optimum nerve stimulation** .
21 The system for the electromagnetic stimulation of living tissue of claim 16 wherein I...

27/3,AB,K/5 (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

00768797

ELECTRICAL STIMULATION SYSTEM FOR TREATING PHANTOM LIMB PAIN
SYSTEME DE STIMULATION ELECTRIQUE, TRAITEMENTS DES DOULEURS ILLUSIONELLES DES AMPUTES ET PROCEDE PERMETTANT DE CONFERER A UN AMPUTE UNE REACTION SENSORIELLE A TRAVERS UNE PROTHESE

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Patent Applicant/Inventor:
HOFFER Joaquin Andres, 241 Strong Road, Anmore, British Columbia V3H 3C8, CA, CA (Residence), CA (Nationality), (Designated only for: US)
Legal Representative:
KONDOR George F (agent), Oyen Wiggs Green & Mutala, 480 - 601 West Cordova Street, Vancouver, British Columbia V6B 1G1, CA,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200102054 A2-A3 20010111 (WO 0102054)
Application: WO 2000CA789 20000705 (PCT/WO CA0000789)
Priority Application: US 99142983 19990706
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 5364
English Abstract
This invention relates to a system and methods for relieving phantomlimb pain in amputees, and for providing an amputee with sensory feedback from a prosthetic limb (40). The system employs implantable multichannel, multi-chambered interface structures, namely, nerve cuffs (30). The implanted nerve cuffs have **electrodes** (14) which transmit electrical signals generated by a signal generator (12) to nerves (20), recruiting certain neurons to send sensory signals to the cerebral cortex, suggesting sensory sensations to the amputee. Such signals can arise directly from the signal generator, approximating the train of signals seen by the cortex in a normally innervated limb, or can originate from sensors (50a-c) in a prosthetic limb.
Main International Patent Class: **A61N-001/34**
Fulltext Availability: Detailed Description
Detailed Description
... types of electrodes for providing the desired stimulation. Multichannel electrodes are also more efficient for selectively recruiting desired sensory nerve modalities with **electrical stimulation** . Multi-chambered **nerve** cuffs are the **most** preferred **design** for providing multichannel **stimulation** . Another aspect of this invention provides methods of application of non-noxious electrical stimulation...

27/3,AB,K/6 (Item 4 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

00767001
DEVICES AND METHODS FOR VAGUS NERVE STIMULATION
DISPOSITIFS ET METHODES DE STIMULATION DU NERF VAGUE
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Patent Applicant/Inventor:
PUSKAS John D, 854 Carlton Ridge, Atlanta, GA 30322, US, US (Residence), CA (Nationality), (Designated only for: US)
Legal Representative:
WARREN William L (et al) (agent), Kilpatrick Stockton LLP, 2400 Monarch Tower, 3424 Peachtree Road, N.E., Atlanta, GA 30326, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200100273 A1 20010104 (WO 0100273)
Application: WO 2000US17222 20000623 (PCT/WO US0017222)
Priority Application: US 99141202 19990625
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 14146
English Abstract
The present invention relates to apparatus and methods for electrically inducing, pharmacologically maintaining cardiac asystole. The present invention also provides cutaneous array electrodes (900) that may be used non-invasive to stimulate the vagus nerve.
Main International Patent Class: **A61N-001/05**
Fulltext Availability: Detailed Description
Detailed Description
... invention is that it offers the surgeon an apparatus that integrates the means to electrically **stimulate** the vagus **nerve** with the means to determine whether the heart beat is suppressed and will automatically determine the **optimum** **stimulation** to the **nerve** .
Another advantage of the present invention is the induction of a readily regulated and reliable...

28/6/1 (Item 1 from file: 349)
00972490 **Image available**
THERAPEUTIC METHODS USING ELECTROMAGNETIC RADIATION

28/6/3 (Item 3 from file: 349)
00533275
PROBES USED FOR GENETIC FILING

28/6/4 (Item 4 from file: 349)
00532574
STIMULATORY DEVICE AND METHODS TO ENHANCE VENOUS BLOOD RETURN DURING CARDIOPULMONARY RESUSCITATION

28/6/5 (Item 5 from file: 349)
00389927 **Image available**
STRUCTURE METHOD OF USE, AND METHOD OF MANUFACTURE OF AN IMPLANTED HEARING PROSTHESIS

28/6/6 (Item 6 from file: 349)
00357418
APPARATUS AND METHOD FOR LOCATING A NERVE

28/6/7 (Item 7 from file: 349)
00352856 **Image available**
APPARATUS AND METHOD FOR NON-INVASIVE BLOOD ANALYTE MEASUREMENT

32/6/1 (Item 1 from file: 348)
01552504
Pacemaker with enhanced capture tracking

32/6/2 (Item 2 from file: 348)
01400455
Implantable cardiac stimulation device with automatic evoked response sensing electrode configuration selection and method

32/6/3 (Item 3 from file: 348)
00633517
AUTOCAPTURE SYSTEM FOR IMPLANTABLE PACEMAKER

32/6/6 (Item 3 from file: 349)
00264068
AUTOCAPTURE SYSTEM FOR IMPLANTABLE PACEMAKER

32/3,AB,K/4 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
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01118688
METHOD OF AUTOMATIC EVOKED RESPONSE SENSING VECTOR SELECTION USING EVOKED RESPONSE WAVEFORM ANALYSIS
PROCEDE DE SELECTION AUTOMATIQUE D'UN VECTEUR DE DETECTION DE POTENTIEL EVOQUE AU MOYEN D'UNE ANALYSE DU SIGNAL DU POTENTIEL EVOQUE
Patent Applicant/Assignee:
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Legal Representative:
SOLDNER Michael C (et al) (agent), MC LC340, 710 Medtronic Parkway, Minneapolis, MN 55432, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200439447 A1 20040513 (WO 0439447)
Application: WO 2003US34885 20031031 (PCT/WO US03034885)
Priority Application: US 2002284870 20021031
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH

PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 9141
English Abstract

A cardiac pacing device and method for automatically selecting an optimal evoked response sensing vector based on an evaluation of the evoked response signal quality are provided. **Electrode** switching circuitry allows selection of multiple **sensing electrode** vectors. Capture detection circuitry provides capture and loss of capture signal characteristics determined during a pacing threshold search to be used in determining evoked response signal quality parameters. An **optimal** evoked **response sensing** vector is selected based on evoked response signal quality parameters meeting predetermined criteria for reliable evoked response sensing.

Main International Patent Class: **A61N-001/37**
Fulltext Availability: Detailed Description
Detailed Description

... R-waves for verification of atrial capture is generally disclosed. However, automatic switching/selection of **electrodes** does not necessarily ensure that an optimal evoked **response sensing electrode configuration** will be selected. When multiple **electrodes** are available, evoked **response sensing** may be more reliable along one **sensing** vector than another. A method for automatically determining an **optimal electrode configuration** for measuring a metabolic parameter such as minute volume used for metabolic rate responsive pacemakers...
...Pat. No. 5,707,398, issued to Lu. This method, however, does not address optimal **electrode** determination of evoked **response sensing** . What is needed therefore, is a method for automatically selecting an optimal evoked **response sensing** vector based on an evaluation of the evoked **response** signal quality.
The present invention provides an implantable cardiac pacing device and method for automatically...

32/3,AB,K/5 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01063901
METHOD AND APPARATUS FOR SELECTING AN OPTIMAL ELECTRODE CONFIGURATION
PROCEDE ET DISPOSITIF DE SELECTION D'UNE CONFIGURATION D'ELECTRODES OPTIMALE
Patent Applicant/Assignee:
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Legal Representative:
SOLDNER Michael C (et al) (agent), MS LC340, 710 Medtronic Parkway NE,

Minneapolis, MN 55432, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200392807 A1 20031113 (WO 0392807)
Application: WO 2003US10437 20030404 (PCT/WO US0310437)
Priority Application: US 2002137248 20020430
Designated States: CA JP
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 9086
English Abstract
An electrical medical lead is provided having two or more **electrodes,** electrically insulated from each other and electrically coupled to individually insulated filars in a multi-filar coiled conductor. When the lead is used with a medical device equipped with a switch matrix, **electrodes** are selected individually or simultaneously to serve as an anode or cathode in any unipolar, bipolar or multi-polar configuration for delivering **stimulation** and/or **sensing** signals in excitable tissue. In one embodiment, a tip electrode array is expandable for improving electrode contact with targeted tissue and stabilizing lead position.
Main International Patent Class: **A61N**-001/37
International Patent Class: **A61N-001/05** ...
Fulltext Availability: Detailed Description
Detailed Description
... use of drugs, or changes in disease state. By repeating the **electrode** scan periodically, the **optimal electrode configuration** and appropriate pacing energy or **sensing** threshold settings may be updated in **response** to such changes.
The present invention is realized in an implantable medical lead possessing one...
...failure occur. A method for using the medical lead has also been described in which **optimal electrode configurations** may be automatically, or semi-automatically, selected.
While the medical lead and associated method included...

33/6/6 (Item 4 from file: 349)
00763389 **Image available**
DETERMINING A PATIENT'S SUSCEPTIBILITY TO ARRHYTHMIA

33/6/7 (Item 5 from file: 349)
00566456
SIMULTANEOUS DETERMINATION OF EQUILIBRIUM AND KINETIC PROPERTIES